


Counterurbanization in the peri-urban forest of Guadalajara, México

Contraurbanização na floresta periurbana de Guadalajara, México

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Abstract: Forests and farms are often replaced by counter-urbanization, in which people move from urban to rural areas, causing the progressive growth of rural areas beyond cities. This article delves into the counterurbanization process in the peri-urban forest of Guadalajara, Mexico known as “Bosque La Primavera” (BLP), discussing three key elements: (1) the absence of a forest buffer zone, (2) the shift from agricultural to industrial and tertiary activities, and (3) green tourism and neo-ruralism moving to the countryside. A mixed methodological approach based on the Theory of Change (ToC) was used. Data was collected from an organization implementing a forest conservation program in 2020 and 2021. Twelve interviews were conducted with brigade members and academics. From the counterurbanization perspective, this study illustrates how unregulated urbanization, land use changes, and green tourism have all contributed to the progressive degradation of forest reserves in the BLP. Due to the growing links between urban and rural areas, rural economies in peri-urban forests are gradually being replaced by industrial and tertiary practices, whereas tourist amenities require new services that alter rural living patterns.

Keywords: regional economics, regional planning, regional studies, rural economics, socialist infrastructure, social land markets, urban studies.

Resumo: As florestas e as quintas são frequentemente substituídas pela contra-urbanização, em que as pessoas se deslocam das zonas urbanas para as zonas rurais, provocando o crescimento progressivo das zonas rurais para além das cidades. Este artigo analisa o processo de contra-urbanização na floresta periurbana de Guadalajara, México, conhecida como “Bosque La primavera” (BLP), discutindo três elementos-chave: (1) a ausência de uma zona tampão florestal, (2) a mudança de actividades agrícolas para actividades industriais e terciárias, e (3) o turismo verde e o neo-ruralismo a deslocarem-se para o campo. Foi utilizada uma abordagem metodológica mista baseada na Teoria da Mudança (ToC). Os dados foram recolhidos numa organização que está a implementar um programa de conservação florestal em 2020 e 2021. Foram realizadas doze entrevistas com membros da brigada e académicos. Na perspetiva da contra-urbanização, este estudo ilustra como a urbanização desregulada, as mudanças no uso da terra e o turismo verde contribuíram para a degradação progressiva das reservas florestais na BLP. Devido às ligações crescentes entre as zonas urbanas e rurais, as economias rurais nas florestas periurbanas estão a ser gradualmente substituídas por práticas industriais e terciárias, enquanto as comodidades turísticas exigem novos serviços que alteram os padrões de vida rurais.

Palavras-chave: economia regional, planeamento regional, estudos regionais, economia rural, infra-estruturas socialistas, mercados fundiários socialistas, estudos urbanos.



1. Introduction

Urbanization has traditionally been interpreted as the sequential and unidirectional transformation of landscapes and societies from rural to urban status. However, rural and urban areas are not only highly interdependent but also coexist and often merge in the same space or livelihood strategy. To comprehend the material flows, institutions, forms of social practice, and lifestyles that entangle rural and urban areas, it is far more appropriate to use concepts such as rural-urban gradients, peri-urban fringes, or rural-urban interfaces (Hoffmann et al., 2023).

Urban expansion is regulated by legislation that determines how land should be occupied and which spheres of authority are responsible for organizing the territory (Lopes Zampieri & Balestro, 2020). When urban sprawl already encompasses the peri-urban forest, it has geological consequences, placing the forest mass under considerable pressure. With the increasing population density in growing and developing cities, there is a real risk that green spaces will become overcrowded.

The Bosque La Primavera (BLP) is located in the central region of the Mexican state of Jalisco, in the middle of the valleys of Tala, Tesistán, Toluquilla, Atemajac, and San Isidro Mazatepec. The wide area extends across the five municipalities of Zapopan, El Arenal, Tala, and Tlajomulco from Zaiga. Previously, the BLP was used for timber extraction, recreation, and urban development. Its preservation dates back to 1934 when it was designated as a forest protection zone. In 1943, a water park opened within the forest followed by a SPA owned by a foreign commercial company in 1959, and then the oldest housing development within the forest called "Pinar de la Venta" in 1968.

As early as 1970, the State of Jalisco considered the BLP to be a public forest and tourist attraction, and it was designated an urban reserve in 1972. A Presidential Decree issued on March 6, 1980, designated the BLP as a Protected Natural Area (ANP, in Spanish), and it became a protected forest zone and wildlife refuge. In 1995, the federal government transferred the BLP's administration to Jalisco. In accordance with current legislation, the BLP's management is distributed as follows: citizens, 5%; the government, 76%; private owners, 10%; and academics, 9% (Figure 1).

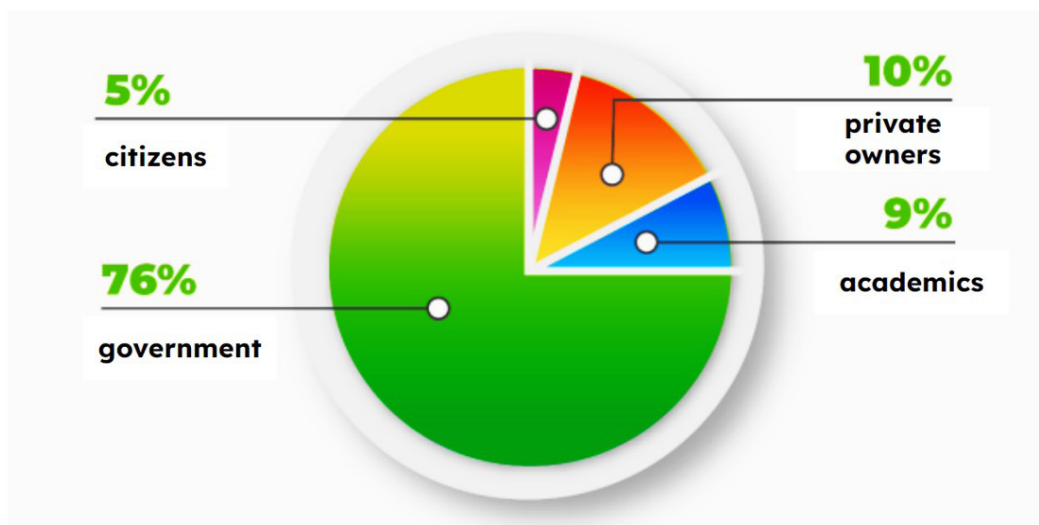


Figure 1. The BLP management committee.
Source: OPD Bosque la Primavera

The BLP committee consists of eight representatives from civil society organizations, one representative from each *ejido* or community, four representatives from private property, and four representatives from universities or research institutes. However, the BLP area is comprised of 50% private property, 35% *ejidal* and/or communal property, and 15% state-owned property. One of the primary issues within the forest and urban areas is the growing population in peri-urban towns and small cities (Table 1).

Table 1. Demographic growth and counterurbanization within the BLP

Rural community	2000	2010	2020
San Francisco Tesistán	39,269	62,397	91,631
San Agustín	14,355	30,424	49,402
Santa Cruz del Valle	13,908	26,866	30,849
La Cuchilla	297	1,712	13,242
El Refugio	5,410	6,262	7,121
La Venta del Astillero	5,485	5,649	5,770
San Isidro Mazatepec	3,238	3,655	4,083

Source: National Institute of Statistics and Geography (INEGI)

Forests and farms are often replaced by counterurbanization processes. Housing projects are transforming land use, hydrology, climate, and the surface energy balance in peri-urban forests worldwide. Studies have shown that urban expansion will result in a loss of 1.8 - 2.4% of global farmland by 2030 with substantial regional disparities (Bren d'Amour et al., 2017). As a result, Mexico is expected to lose 683,000 ha of farmland by 2030, which is equivalent to a loss of 4,130 thousand tons of food production.

Considering that the majority of urban expansion will occur in Latin America, Asia, and Africa, securing the rural economies of the Global South requires a strong institutional framework for urban governance. Managing urban areas and preserving forest buffers depend on containing urban expansion. In urban policy and planning, urban agricultural activities, peri-urban green areas, and rural economies are protected by economic incentives and policy instruments. Forest ownership, the influence of overlapping claims on forests, and the articulation, monitoring, and enforcement of property rights are some of the key policy questions dominating the policy dialog on forests and tenure.

Metropolitan areas have been developed in cities such as Guadalajara, Mexico, which is close to the BLP. To protect forests, a new legal entity has been established in the BLP, the Organismo Público Descentralizado (OPD) or Decentralized Public Entity, which is responsible for forest administration and consists of an administrative governance organization with collegiate decision making. Its agreements consist of social participation and project permanence, as well as long-term planning and budget strengthening. Nonetheless, the expansion of cities and housing units within forested areas is threatening the BLP (Figure 2).

Four types of vegetation occur in the BLP, with oak-pine forests prevailing at all altitude gradients. The BLP provides rich environmental value including aquifer recharge, climate regulation, flora, fauna, and geological wealth (Comisión Estatal de Derechos Humanos Jalisco, 2023). However, the forest scarcity pathway is the result of demand for forest products such as wood, pulp for paper, bioenergy, and public services. Tree lines and fauna in the BLP have suffered significantly because of climate change; plagues have increased, and trees are dying. Moreover, the amount of precipitation has changed, resulting in a deficit in soil moisture, leading to a reduction in tree density.

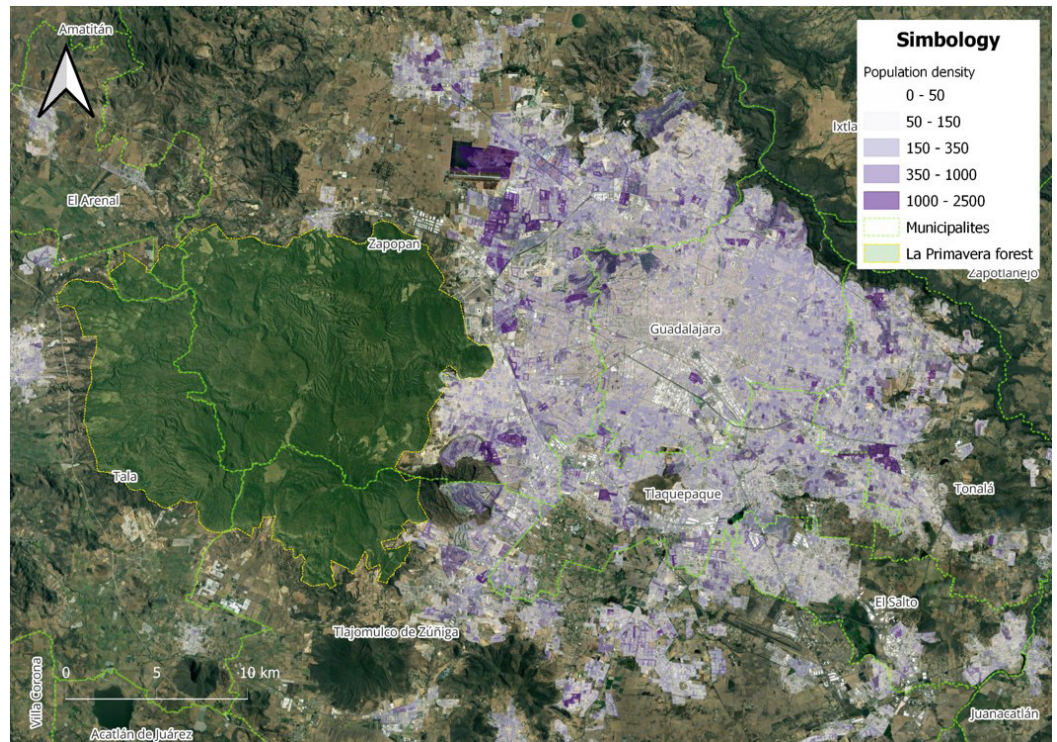


Figure 2. Bosque La Primavera and urban pressure from the Guadalajara Metropolitan Area.
Source: Authors

2. Theoretical Foundation

The term “counterurbanization,” refers to reverse migration from the city to the countryside, usually occurring in highly developed regions because of large-scale urbanization and the accumulation of wealth. In the Guadalajara Metropolitan Area, the most common approach to environmental planning of the peri-urban fringe lacks specific responses to the problems affecting the peripheries. According to Allen (2003), the urban-rural dichotomy is insufficient to deal with planning systems in peri-urban areas, where rural and urban characteristics increasingly tend to coexist within and beyond the city limits (Allen, 2003).

Counterurbanization is one of the most well-known demographic trends associated with rural restructuring. This concept is particularly relevant to socio-ecological systems that have a long history of human land use (HerreroJáuregui & Concepción, 2023). Counterurbanization emerged in the 1960s due to a counterculture movement seeking physical and spiritual reunion with nature in the countryside. The fourth industrial revolution, characterized by digitalization, brought about neo-ruralism—a movement from the city to the countryside in search of a better quality of life.

However, this phenomenon reinforces the urbanization of rural areas. Studies in Calcutta (India) and Kumasi (Ghana), cities in the Global South, show the peri-urban fringe, defined as an area in which rural aspects have been lost but urban characteristics are also absent. Furthermore, peri-urban settings tend to be surrounded by dense, generally impoverished slums as well as other types of informal and/or irregular housing, often characterized by poor infrastructure, inadequate or non-existent public services, and high crime rates (Mukherjee, 2016; Simon et al., 2004).

In counterurbanization, population movements and deconcentrations occur, leading to the development of a new pattern of housing settlements that challenges Central Place Theory; however, the academic literature on counterurbanization in Latin America is clearly insufficient to analyze its presence or evaluate its effects (Ferrás, 2007). Researchers from Latvia, Poland, and Germany have concluded that peri-urban development is primarily a rural phenomenon (Biegańska et al., 2018). Rural areas undergo changes in their roles and functions due to urban influence, such as a reduction in agricultural functions, an increase in construction activities, and changes in land use. In recent years, societies have experienced significant sociodemographic changes, with changes in both population density and population structure. Therefore, both urban and rural populations have experienced significant inflows.

Sociologists have predicted a new counterurbanization boom due to the pressure placed on society during the COVID-19 pandemic. Following the pandemic, the desire to get back in touch with nature and away from overcrowded urban centers has increased. Thus, counterurbanization, or the migration from cities to villages for a healthier and more sustainable lifestyle has gained momentum worldwide. Neo-ruralists feed off this trend, as they are ecologically conscious and do not intend to alter the environment but rather to restore it. Consequently, rural tourism businesses and ecovillages profit from people who leave the city for the countryside to seek such sustainable lifestyles.

The rural and urban features of a city tend to coexist both within and beyond its boundaries. Some researchers have examined the property relations and land tenure of ejidos and agrarian communities at the national level using a sample of cases from the countryside (Torres-Mazuera, 2012; Torres-Mazuera & Appendini, 2020). Though they share the same space, rural groups maintain different rights and interests, putting social ownership at risk because there is a great deal of heterogeneity within ejidos and communities. Ejidos and agricultural communities have undergone significant transformations because of neoliberal policies that have placed the market in charge. As some researchers have noted, counterurbanization is usually driven by natural amenities, as forests typically expand on abandoned agricultural lands (Jimenez et al., 2021).

A Brazilian study showed that, until recently, studies were not necessary to justify expanding the urban perimeter, thus there were no legal instruments to prevent it (Silva & Rodrigues, 2023). In Chile, a documented case of counterurbanization on legally protected indigenous lands based on amenity use opened up a new front in the conflict between urban and peri-urban areas. This is because the permeability of these areas is not solely the result of the real estate market but also due to private individuals seeking the amenities offered by these areas (Rojo-Mendoza et al., 2022).

A 2019 study conducted in nine municipalities in Mexico's Mixteca Alta region in Oaxaca state, found that between 1950 and 2000, there was a significant increase in population retention due to local tertiarization, the ability to commute to nearby small cities, and a decrease in traditional pull factors (Lorenzen, 2022). Moreover, economic deindustrialization has largely been driven by the transition from manufacturing to the service sector and the development of knowledge-based industries, which indirectly drive counterurbanization (Jimenez et al., 2021).

In Mexico, the ejido plays a significant role in land policies, highlighting the existing legal and financial frameworks. Ejidos remained steadfast in opposition to urbanization in Mexican states with high rates of urbanization. In each case, resistance and negotiation strategies were used in a heterogeneous manner based on each community's specific demands and

development (Escobar Ohmstede et al., 2017). In the context of a city, urban forests are being considered for their psychological, aesthetic, sociocultural, ecological, environmental, and economic value relevant to urban life (Ordóñez & Duinker, 2014). Hence, it is necessary to plan the management and future of urban forests to ensure the long-term sustainability of cities (Steenberg et al., 2018).

Agricultural policy reforms and land tenure legislation have placed constant pressure on Mexican agriculture, affecting the economic activities of agricultural communities (Prud'homme, 1995). In recent years, struggles over land tenure have been displaced by those over agricultural productivity due to commercial opening and economic deregulation. It can be argued that rural Mexico's rural experienced a period of "crisis and adjustment" in the 1990s on the economic and social fronts, as well as the network of micro and macro relationships established as a result of the Agrarian Reform and the North American Free Trade Agreement. Appendini & Torres-Mazuera (2008) argue that peasants and the countryside are viewed as residual factors in a global, competitive, and high-tech economic system in which small rural producers are now classified as inefficient and uncompetitive. They describe this dimension as the cessation of government involvement in the production, distribution, and consumption of agricultural products.

The lack of interest in *ejidatarios*, the legal representative for communal property, results in their diminished awareness of the transformation of forest processes, their diminished presence in restoration practices, and the reduced benefits of conservation budgets on their domestic economies. This study analyzes the main causes and consequences of the transformation of rural economies around the BLP, focusing on three key elements: (1) the absence of a forest buffer zone, (2) the shift from agricultural to industrial and tertiary activities, and (3) green tourism and neo-ruralism moving to the countryside.

3. Methodology

To evaluate the counterurbanization process in the peri-urban forest of Guadalajara, the Theory of Change (ToC) was used. The purpose of this approach is to evaluate the governance and rural actors involved in BLP conservation. The dataset from 2020-2021 was compiled based on the records of the OPD-BLP program implementation. Furthermore, 12 key actors were interviewed for qualitative data, including researchers from the OPD-BLP scientific committee, experts from the Secretariat of Environment and Development (SEMADET), and academics from the University of Guadalajara. The interview application process was conducted online between March and April 2022. In addition to the transcripts of the recordings, a final corpus of information was created, which included official documents, geographical details, and translated interviews.

Data collected from the interviews were analyzed using ATLAS.ti software, which generates a network analysis utilizing five methods: 1) identification and classification of data sources; 2) The synthesis and clustering of information; 3) categorization of textual descriptions of context, interactions, actors, and institutions; 4) coding of indicators associated with theoretical categories; and 5) the creation of networks and measuring the frequency of codes. To make it easier to capture the networks visually, they were synthesized into a diagram (Figure 3).

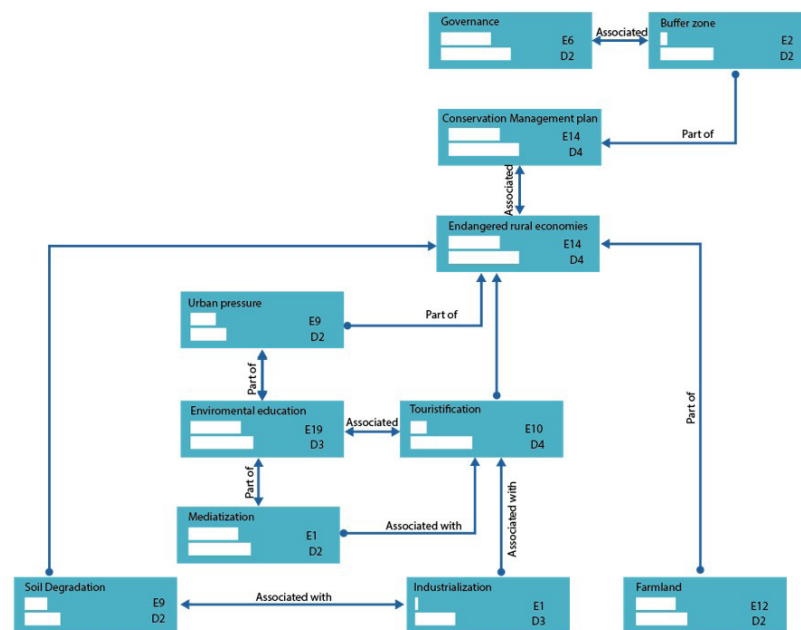


Figure 3. Coding and networks. *Source:* Author illustration

The findings were then organized into three main determinants affecting the counterurbanization of the BLP: farmland, forest conservation, and ecotourism. Using the ToC, it was possible to measure the effect of conservation and restoration actions within the context of community cooperation. Moreover, a qualitative analysis illustrated the challenges rural economies face in receiving subsidies as well as the failure to include ejidatarios in urban contention plans or the regulation of tourist activities in the BLP.

4. Results

Along with counterurbanization, home offices in the post-pandemic era have enabled many people near the peri-urban forest, who would otherwise be unable to leave the city of Guadalajara, to experience rural life. Despite the limited number of jobs available in the countryside, unexpected inconveniences, such as Internet connection failures, can exacerbate these problems. Several themes emerged from the findings, including counterurbanization manifested in urban pressures on the forest interface, agricultural economic transformations as a result of urban demands, and the negative impact of tourism on the BLP.

4.1 Counterurbanization and the absence of a forest buffer zone

Urban pressure is clearly a primary concern for the local government; however, the organizational capacities of the existing governance structures are very limited. Because of city development without systematic planning, Guadalajara has experienced urban sprawl. Furthermore, neither IMEPLAN nor private landowners have intervened to stop land speculation by informal settlers. The BLP is negatively impacted by urban pressure in two ways: it lacks a buffer zone and lacks effective governance of the nearby peri-urban forests and farmland. Despite the absence of a buffer zone, it is possible for some unbuilt areas in the BLP to serve as buffer zones and mitigate the impact of urban sprawl on the forest (Figure 4).



Figure 4. Housing units within the BLP. *Source:* Authors

In contrast, the lack of coordination between municipalities, IMEPLAN's metropolization planning, and academic voices limit the potential for converging actions against urban pressure. First, there is disagreement between prioritizing environmental or economic concerns in urban planning. Consequently, without an integrated political perspective, the ecological problems of the BLP have been reduced to gardening. As managed by the IMEPLAN, urban development is incompatible with sustainability in cities, thereby justifying urban expansion in the interest of political entities.

Regarding buffer zones, no one assumes responsibility for them. Despite claims that the local forest council cannot intervene because the buffer zone lies outside the forest's perimeter, all parties avoid taking responsibility. Conversely, municipalities sharing a forest border claim to be responsible only for activities beyond the forest's boundaries. In small and intermediate cities, land use is determined by municipalities and municipal plans govern land use. It is not the municipality's purpose to provide incentives, but rather to monitor, control, supervise, and manage the forest; thus, municipalities do not interfere with the forest but rather focus on their community needs.

For the governments of the Metropolitan Area of Guadalajara, the buffer zone is an uncomfortable topic, and discussions regarding the intermediate space between urban, rural, and forest areas have already been closed. Forest houses are usually large luxury cabins found in the middle of a forest and are associated with wealthy urban residents with high purchasing power. The original rural houses create a striking contrast, demonstrating societal inequalities, as the settlement is located in a forest where people live in poverty.

Due to dissimulation and nepotism, the peri-urban forests, and farms near the BLP lack governance. Recently, the Mexican government removed protection from a 5,000 ha forest without consulting CONANP, establishing a precedent for violating Article 27 of the Mexican Constitution, which protects protected areas. In addition, the public has not been consulted, and little citizen participation has been observed. There was no public consultation during the revising of the Conservation Areas Management Plan; thus, all parties agreed on and accepted the document. Peri-urban residents do not participate because urban elite groups discourage them, and they are fearful of prosecution. Considering that a new ejidal commissioner is appointed every three years, many people believe that it is difficult to implement their own ejidal plans over a short period.

The BLP is also subject to criminal activity involving drug trafficking and environmental crimes, in addition to urban pressure and counterurbanization. Governments are not the only parties affected by drug groups; landowners have also been affected. As a result, the BLP can defend itself with little intervention because drug traffickers occasionally meet or act in the area. Under these circumstances, it is impossible to consider the forest pristine.

4.2 Shifting from agricultural to industrial and tertiary activities

SEMADET experts stated that agribusiness and urban development are the two underlying problems in the BLP. Agricultural production, such as avocado orchards and agave production, is shifting from rural to industrial levels. Traditionally, farmland has been envisioned as a system that includes forests, livestock, and agriculture. However, due to massive industrial production, current population pressure exceeds the forest's capacity to sustain itself.

Furthermore, different types of land ownership serve different purposes, posing a challenge. Many landowners undertake various land management activities, including protecting forests and making sustainable use of their properties. For those who manage their property for public use, it is also possible to allow visitors access to it. Hence, usufructs are closely related to the popular idea that alternative development options are more profitable. Landowners place the greatest emphasis on profitability and ejido land sales are seen as a solution to poverty and social exclusion, which are prevalent in most ejidos. In response, urban developable land, including both ejidal and private farmland, is available for sale.

Deforestation is a multifaceted process associated with counterurbanization. The BLP also faces soil degradation in due to water extraction and fires. According to SEMADET experts, most fires in the BLP originate outside the protected area, are usually the result of agricultural burning, and are difficult to contain due to the area's slopes and topography. Controlled burning is a common practice in the management of fires within the BLP; however, there is significant controversy between academics and government representatives regarding its use. According to the geologist interviewed, biological residues are crucial for forest soil because they form a surface layer. Any type of fire destroys a forest's biodiversity, which is essential for its function of capturing water, regulating water flow, and preserving cultural practices. Consequently, any fire that destroys this layer negatively impacts the forest's ecological functions.

From 1998 to 2022, more than 1,100 fires have occurred in the area, with significant recurrence in the peri-urban area of Zapopan and the forest area of the growing cities of Tala, San Isidro Mazatepec, and Ahuiscolco. SEMADET experts estimate that a high percentage of accidents are caused by intentional acts; however, this frequency is not reflected in criminal prosecutions.

Water is another issue that is often overlooked when it comes to the counterurbanization of the BLP. The presence of thermal water in the forest is evident and closely related to its life. Tourist attractions are generally concentrated in water-rich areas, and water pollution has increased in recent years. The National Water Commission published information regarding the availability of groundwater in 2015, indicating that all aquifers located in the territory occupied by the Metropolitan Area of Guadalajara were insufficient. To ensure the stability of the area's water supply in the future, it is essential to restore the BLP's water system.

Despite subsidies for forest conservation under the BLP, rural communities rarely receive subsidies for their activities. Financial support is primarily intended to benefit rural communities within a forest area through subsidized restoration and conservation activities. SEMADET experts suggest that due to the high number of beneficiaries within the ejido, the social impact is greater.

There is also poverty in the peri-urban forest. Some BLP neighborhoods, such as Colinas del Tizate and Lomas de la Primavera, are among the most impoverished and deprived in the city (Figure 5). According to the INEGI (Instituto Nacional de Estadística y Geografía, 2020), 90–100% of houses in these two neighborhoods lack basic services, more than 50% lack decent housing, 40% lack access to health services, and 50% have educational gaps.

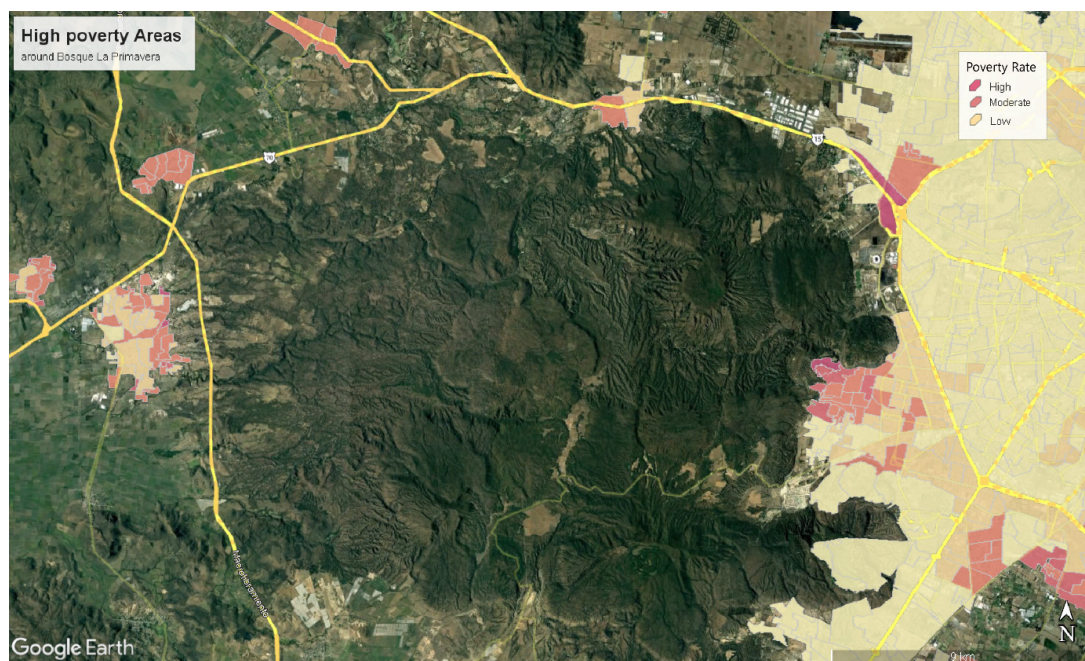


Figure 5. High poverty areas around the BLP. Source: Consejo Nacional de Evaluación de la Política de Desarrollo Social (2020)

Although most of the forest area is privately owned, conservation programs are largely biased towards benefiting ejidos rather than small landowners. The peri-urban forest in the BLP consists of 13 ejidos with 2,991 residents as well as private landowners who are covered by the program for funding forest conservation. However, only four of the 13 ejidos participated in the 2020 and 2021 programs, while nine private owners received subsidies as part of the program. During the 2020 project, five private owners and three ejidos received subsidies, whereas in 2021, only five ejidos and three private owners received subsidies. Seven activities were conducted to establish conservation and restoration brigades, but one was not completed.

The counterurbanization process in the BLP is indirectly influenced by socioeconomic and cultural changes, most notably the shift from manufacturing to service- and knowledge-based development. Counterurbanization and the shift from metropolitan to peri-urban localities have also been facilitated by new economic activities in rural areas. In rural areas near forests, tourism has often facilitated different alternatives, such as hotel stays and participating in sports or cultural activities. Rural houses are also viewed as an ideal weekend getaway option for those living in Guadalajara. Furthermore, sports tourism offers urbanites the opportunity to reconnect with nature while still exercising. The increasing demand for organic products has also had an impact, with organic farming becoming one of the most popular hobbies among neo-ruralists, and many people are starting gardens as careers and businesses.

4.3 Green-tourism and neo-ruralism moving to the countryside

The stress of city life can lead some people to seek refuge in villages or isolated areas; however, tourists often engage in activities that threaten or disturb the natural population structure and ecosystem, and mechanisms for their recovery may not be implemented. BLP regulations stipulate that only scientific research, environmental education, and tourism activities with low environmental impact are permitted. If applicable, artisanal fishing with low environmental impact gear and the necessary support infrastructure, using ecotechniques and traditional construction materials, is also permitted. The use of natural resources is limited to meeting the basic economic and self-consumption needs of residents in accordance with relevant laws and regulations.

Visitors to the BLP have increased significantly because of the numerous attractions in the area. For example, The Tlajomulco de Zúñiga City Council approved a Local Ecological Planning Program in 2020, which includes some forest areas that are areas of agri-food production, numerous industries, and a variety of services and commerce for a growing population. The municipality will be able to capitalize on local, national, and international tourism, crafts, traditional gastronomy, and a new approach to its intangible heritage. However, touristification bias and its detrimental effects on rural and forest communities must be emphasized. A number of tourist service providers are located near the Mariano Otero entrance, which caters to visitors of all ages who attend sports activities rather than individual visitors. On the other side of the forest are rivers, cabins, picnic areas, and swimming pools, making it an ideal destination for families and groups (Figure 6).

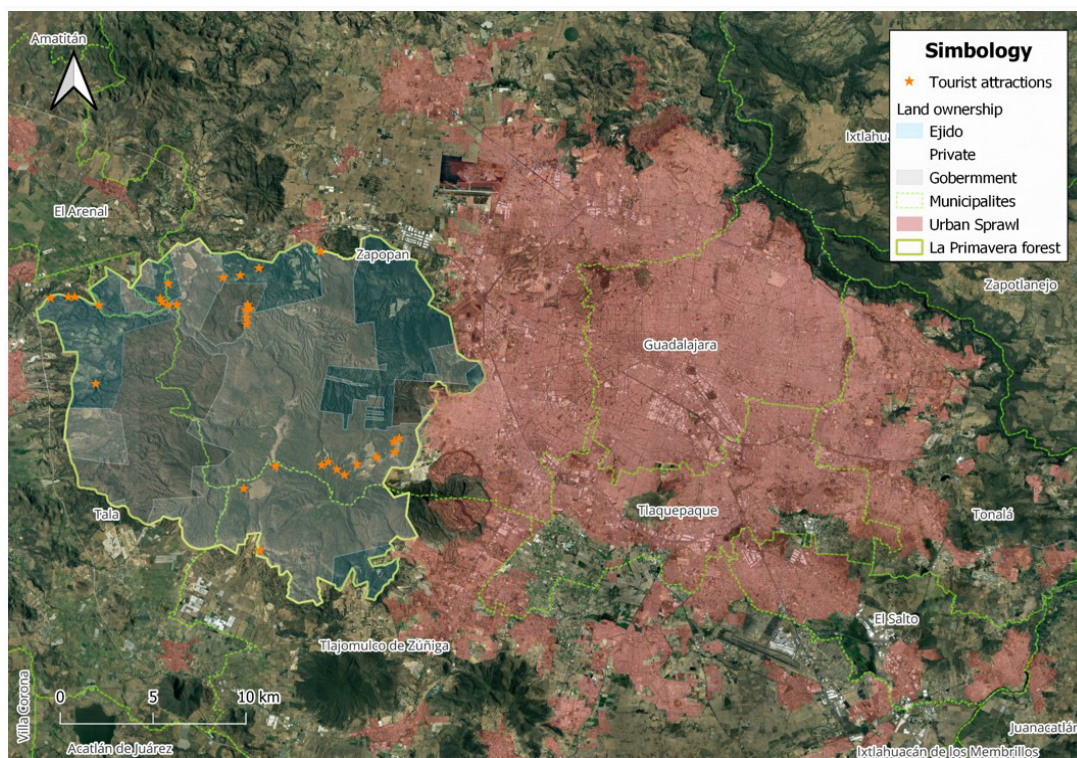


Figure 6. Tourist attractions and urban pressure on the BLP. *Source:* Authors

Every year calls for eco-technology projects, mistletoe sanitation, and the formation of community brigades are issued by the OPD-BLP, inviting owners and 171 ejidatarios to participate in the preservation projects. Furthermore, the government budget promotes the development of tourist services by subsidizing eco-technologies in high-demand locations to strengthen tourist services for visitors. Private landowners receive most of the tourism benefits when their houses are renovated for recreational purposes, terraces are built for social events, and bed and breakfasts are opened. Despite their desire to implement tourist attractions within their territories, ejidatarios lack the financial resources to build tourist centers.

As part of its environmental education plan, the Guadalajara Metropolitan Area is responsible for reducing any negative environmental impacts. The purpose of environmental education and workshops is to raise awareness on the destructive effects of fires on forest ecosystems and promote environmental education. However, to date, there is no clear understanding of how these activities will be conducted.

Most academics interviewed agreed that environmental education must incorporate eco-literacy among authorities in areas where forest programs have failed. Several municipalities lack eco-literacy, there is no socio-environmental perspective in urban planning, and programs have failed to promote a healthy relationship between Guadalajara' residents and nature. There is no requirement to complete environmental education before entering the forests, and some areas have patrols and rangers to control negative behavior rather than provide socio-environmental education.

Tourist activities, such as spas, motorcycles, and cycling, are poorly planned, and the presence of visitors and leisure activities have negatively impacted the forest. Accidents often occur because of tourist behavior, such as damage caused by hikers or the use of fires for cleaning and burning garbage, in addition to burning for agricultural activities and accidental fires. Typically, visitors are weekend tourists who intend to picnic in Rio Caliente but lack the skills to interact effectively with the area. Because the soil in the forest area does not consolidate, cycling practices should be strengthened to prevent soil erosion caused by leaving established routes. Motorcycles are a more serious problem in this regard, as they also leave roads and cause erosion.

In general, brigade members agreed that exotic species introduced by visitors are constantly altering the BLP's fauna. Most people who enter the area for sports activities, such as walking or hiking, bring their pets with them, leaving them to roam free during picnics in the forest, which causes problems, including defecation, spreading bacteria that contaminates the fauna, and pets becoming lost in the forest. For example, several groups of dogs have been observed that may be attacking the forest fauna, and this problem may have spread to other species, negatively impacting the ecosystem.

5. Discussion

As counterurbanization often implies eco-friendly immigrants, nature has become increasingly valued in terms of its aesthetic, spiritual, inspirational, recreational, and rural environment benefits, as opposed to for resource extraction. When urbanites move to the countryside, economic and cultural changes favor conservation and recreation, while extractive activities decrease (Jimenez et al., 2021).

Protecting the environment contributes to human well-being on a social level. The BLP faces a number of challenges, including the loss of hectares of protected areas, land use changes, unplanned urban development, and a protective view of its environmental services in terms of reducing urban pollution for the entire city of Guadalajara. Due to the OPD-BLP's efforts, the BLP has been preserved and restored and is having a positive economic impact on rural populations. As a subsidized activity, local ejidatarios are being trained and paid to control sanitation in public areas.

The BLP restoration and conservation activities require specific skills that are not typical among the rural residents of Guadalajara's peri-urban forests. Furthermore, multiple barriers prevent local residents from participating in the activities proposed by the restoration plan. The timing of forest activities does not consider agricultural calendars or rural rhythms. Another issue is that it is difficult for small landowners to restore trees in their properties when they are located on a hillside with limited access, which represents a lot of labor and the transfer of the same people. Finally, many applications are not processed due to incomplete documentation, lack of proof of legitimate ownership, or lack of property access.

Jagger et al. (2014) compared state-owned forests with private and community-owned forests in 271 villages throughout the tropics and found that state-owned forests generated more income than private or community-owned ones. Forests owned by the state and communities showed a negative correlation between enforcement and forest income, whereas those owned by private individuals showed a positive correlation. Across user rights, state-owned forests were negatively associated with the overlap, whereas community-owned forests were positively associated.

Another area of attention are natural disasters in the forest areas of the BLP, which have gained the attention of the political arena. Due to its media profile and proximity to Guadalajara, the BLP has high visibility and social and media pressures are intense around it, resulting in the majority of forest decisions being made by the media and specialists without consulting landowners and ejidatarios.

Rural landowners are underrepresented in tourist attraction services because such services often require significant capital investment. In addition, it is easier for the government to work with private owners than with ejidatarios, despite the fact that the goal of the program is to maximize collective benefits over individual benefits. Forest transitions mediated by counterurbanization may have different social impacts in different rural communities based on their unique cultural identities (Jimenez et al., 2021). Despite common needs, each individual understands the forest differently, and it is impossible to apply generic regulations to everyone because, in essence, every individual is unique within the forest.

6. Conclusions

There is constant pressure from urban areas on rural economies in the metropolitan periphery. While Guadalajara has been a metropolitan area for more than two decades, there is no mechanism for coordinating the management of peri-urban forests and the rural transition of communities along the BLP. The diversity of circumstances of people living in rural areas close to cities, from farmers to those who own elegant chalets and weekend homes, must be considered. Due to the influence of private property over social and rural landowners, the government does not provide adequate economic support to landowners and ejidatarios in the BLP.

Using the BLP as a zone of influence and impact on the rural-urban border, we can observe the urban pressure exerted by the city on the periphery because of the need for housing. Both conservation activities and resource exploitation are limited by the interactions between rural families and the forest. There are several reasons for this. First, technical training is required to qualify for subsidized forest regeneration activities. The rural and ejido people of the region have specific expertise in sanitation projects and conservation practices. As the current legislation utilizes a primarily administrative approach, it does not consider the environmental criteria necessary to protect forest conservation. In addition, the management instruments used are detrimental to the BLP's ecology. Environmental legislation must be based on legal-environmental theory and be preventive in nature.

Another reason is that the peri-urban area is characterized by mixed land use, resulting in tensions due to the interplay of interests, norms, representations, and values. Socio-economic dynamics are directly affected by the regulation of land use and value. Furthermore, peri-urban localities are largely focused on their history, identity, and traditions rather than on new economic opportunities in the tourism and forest industries. Thus, the precarization of rural areas and farmland is strongly related to the industrialization of agricultural production, the touristification of forest areas, and unequal access to public programs offering financial benefits to those who preserve and restore green areas.

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