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Michael Steinberg and Matthew Taylor

Guatemala's Altos de Chiantla: Changes on the High Frontier

The Altos de Chiantla in the Sierra de los Cuchumatanes represents an economic and environmental anomaly compared with areas surrounding it in highland Guatemala and Mesoamerica in general. For example, this cold and remote plateau region is dominated by sheep and potato production instead of maize, with maize being synonymous with surrounding Maya ethnolinguistic groups. Floristically, the area is also unique compared with surrounding areas. The Altos de Chiantla plateau is dominated by páramo *grasslands and scattered groves of juniper, pines, and fir forests. Therefore, economically and environmentally, this area resembles Andean South America more than northern Central America. And while long-standing activities such as sheep ranching persist in this region, cultural, economic, and environmental changes are also taking place. The present article discusses general landscape changes in this region, with an emphasis on the various impacts that modernization such as remittances and agricultural development projects have brought.*

Keywords: *Altos de Chiantla plateau; sheep ranching; potato farming; remittances; Guatemala.*

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Introduction

The Altos de Chiantla, a high plateau in Guatemala's Sierra de los Cuchumatanes, presents a fascinating landscape anomaly compared with the surrounding areas in highland Guatemala and Mesoamerica in general (Figure 1). In the first instance, this cold and remote plateau lies above the elevation limits of maize production, but supports several thousand rural Guatemalans. Maize cultivation and consumption is synonymous with Maya culture throughout Mesoamerica. Instead, the people of the Altos de Chiantla region rely for their livelihoods on sheep and potatoes.

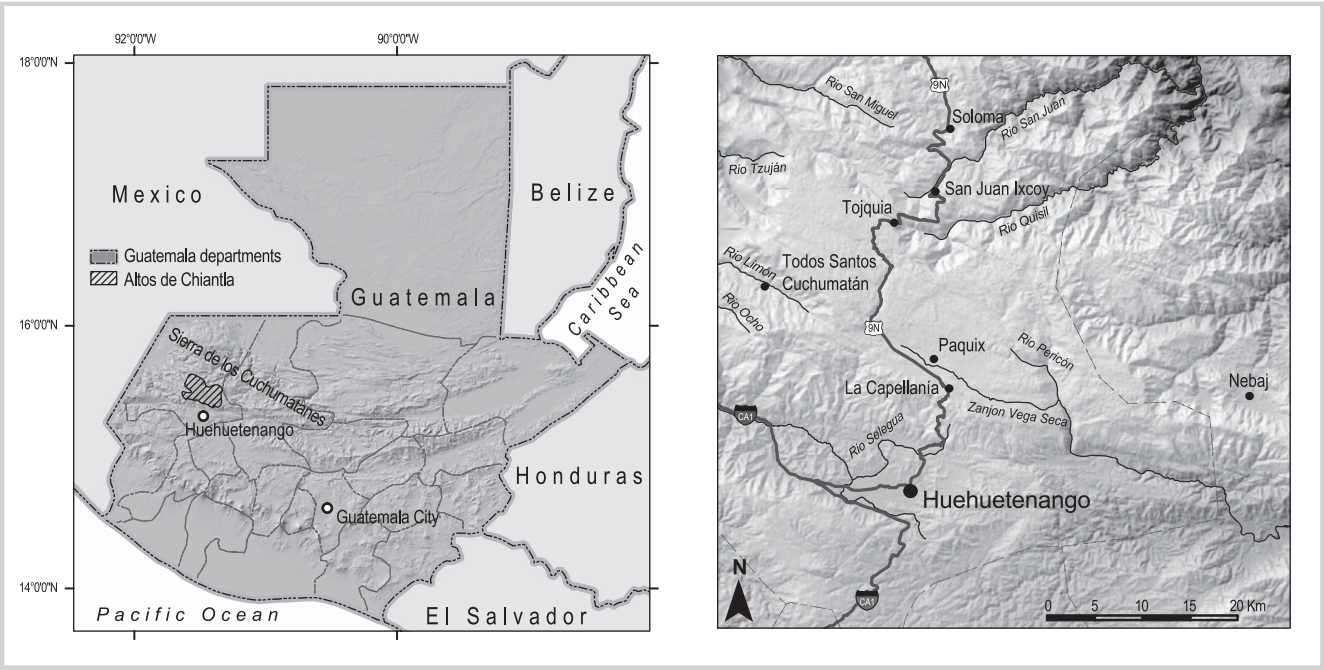
In terms of natural flora, the area also presents several anomalies. The Altos de Chiantla plateau is dominated by *páramo* grasslands and scattered groves of juniper, pines, and fir forests found among rock outcrops and karst sinkholes (Figure 2). The *páramo* represents the northernmost extent of this ecoregion in Central America. The Altos de Chiantla was also one of only two areas in Central America that were glaciated during the late Pleistocene, the other being the Cordillerra de Talamanca in Costa Rica (Lachniet 2004). As a result, culturally, economically, and environmentally, the area resembles more parts of Andean South America as opposed to northern Central America. The uniqueness of the Altos de Chiantla has been commented on by scholars, travelers, and explorers for centuries (Sapper 1894; Termer 1927; Ricketson 1940; McBryde 1947).

This article presents an overview of landscape history, as well as of landscape changes currently taking place in the Altos de Chiantla. A political-ecological conceptual framework is employed to examine landscape change in the high Sierra de los Cuchumatanes in general and the Altos de Chiantla specifically. Political ecology is guided by the perspective that to understand local environmental and cultural changes, one must expand the scale of inquiry to understand outside, larger-scale forces (eg globalization) that influence local-scale processes (see Zimmerer and Bassett 2003 and Robbins 2004 for surveys of the field). In this situation, the local landscape is not a passive actor with change emanating only from "above." Local cultures remake and resist global influences (Scott 1985), but in most instances, change, in various forms, is driven by outside factors such as regional, national, and global markets. Lawrence Levine notes that culture (generally speaking) is not a "fixed condition," but instead "a process: the product of interaction between past and present" and—as we discuss—a product of the interaction between local and global (Levine 1978, cited in Cobb 1992). Similarly, local environments are not passive in the multi-scale process. Nature plays an active role in shaping human–environmental dynamics, even in the face of global pressures (Zimmerer and Bassett 2003). This is especially true in the Altos de Chiantla, where high elevations limit the choices local people have regarding land use practices.

We interviewed 24 adult male residents for this study, using a standardized set of questions about land use and cultural and economic changes in the area. We focused on a small number of individuals to draw out more details about landscape change. Most questions were open-ended, leaving flexibility for the informant to answer as he wished. Sometimes females were present and contributed, but our conversations focused on males because of the controversy of males interviewing females in this conservative landscape (in some households). Combined, the authors spent about 19 months in the field, much of it in the region discussed here, over the past decade. Interviews were conducted in the field with farmers/ranchers in the summer of 2005, with follow-up visits in individuals' homes in January 2006 by the second author. Interviews took place in and around Chemal, Nimjul, Cinabal, San Nicolás,

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FIGURE 1 Location of the Sierra de los Cuchumatanes. (Cartography by Jeff La Frenierre)



Quilén Novillo, and Huito. This research is part of a larger interdisciplinary study which examines past and present cultural and environmental change in the Cuchumatanes by the authors and several other colleagues.

A unique Mesoamerican environment

From the Pan American Highway in western Guatemala, the Sierra de los Cuchumatanes looms in the distance, appearing as a great east–west running wall. As one leaves the department capital Huehuetenango (1900 m) and begins to travel up the steep wall along a switchback highway into the Cuchumatanes, Mesoamerica slowly recedes. Maize gives way to fields of wheat, oats, and eventually potatoes, while scattered groves of pines and juniper replace coffee farms and pine-oak mid-elevation forests. Eventually the road reaches the ridge top at La Capellanía, whereupon the landscape opens up as you enter *páramo* proper.

A large ice cap, estimated to be some 60 km^2 in diameter, covered the high Altos de Chiantla plateau during the late Pleistocene, resulting in modern complexes of boulder-studded moraines and outwash plains (Lachniet 2004; Figure 3). As a result of the high elevation and geologic past, the floristic community also contributes to the making of this unique Mesoamerican landscape. The origin of the Cuchumatanes dates to the Cretaceous, forming an ancient core of Central America (Steyermark 1950). Steyermark (1950) observes: "Upon these old rocks are found some of the most remarkable genera endemic to Guatemala…" This high plateau is dominated by bunch grasses (*Agrostis tolucensis*) and groves of juniper (*Juniperus standleyi*), pines (*Pinus hartwegii*), remnant fir forests (*Abies guatemalensis*), along with scattered *Agave hurteri*, some planted on fence rows (Islebe et al 1995). While this open, grassy landscape, crowded with sheep, might not look unique in the Andes, the plateau is an outlier in Mesoamerica.

During the past 400 years, and perhaps even earlier, humans have played an important role in shaping this environment. The environmental impact of large numbers of sheep and associated pasture burning on the plateau's vegetation begs the question: how natural is the Altos de Chiantla plateau's grasslands? Might the plateau's grasslands have been eventually replaced by trees during the Holocene as the earth warmed during the past 10,000 years? Given the glacial past and high elevation, obviously some natural alpine grassland existed prior the introduction of sheep in the early colonial period. But have sheep and also occasional pasture burning expanded the range of the plateau's *páramo* grasslands in areas that trees might naturally occupy? According to elderly informants, trees were "more common" in the past, but how extensive is unknown. Twenty-two of our informants claimed trees were more noticeable and accessible in the past (the "past" varied, depending on their age). The human role in the creation of this ecoregion is an important and ongoing theme in *páramo*-related research throughout its range (Baslev and Luteyn 1991).

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FIGURE 2 Typical landscape in the high Cuchumatanes. (Photo by Michael Steinberg)



Early perceptions and uses

The Sierra de los Cuchumatanes in general—and the high plateau specifically—remains little studied and therefore one of the least understood pre-Columbian Maya landscapes in Mesoamerica (Lovell 2005). Little systematic historical and pre-historical human–environmental research or archaeological work has taken place in the Cuchumatanes, and especially in the upper elevations (Smith and Kidder 1951; Lovell 2005). It is not clear as to why this highland region in Guatemala has long been neglected by archaeologists and other researchers, for at least 140 Maya archaeological sites in the area have been identified (Lovell 2005).

It is unclear how pre-Columbian peoples used and impacted the Altos de Chiantla plateau. If one examines maps indicating pre-Columbian sites and settlements on the eve of the Spanish conquest (see Lovell 2005), it is clear that the plateau area supported few permanent residents and no settlements of any significant size. But surely natives exploited certain resources such as salt and firewood (Lovell, personal communication). Again, though, the plateau appeared to have few if any permanent settlements. There are a few terraced areas on the plateau, but their exact origin is unclear. According to informants, terraces date to the "old times," which usually refers to the colonial era.

It was not until the Spanish arrived that the high plateau became a *commercially* exploitable and desirable landscape. The Spanish introduced sheep and new varieties of potatoes, both perfectly adapted to the high plateau's vegetation and boggy soils in the case of potatoes. After sheep were introduced, the plateau became a center for sheep production in colonial Central America (Lovell 1983, 2005). There has been a debate within geography and other disciplines about whether or not potatoes arrived in Mesoamerica before the Spanish via diffusion through the Central American isthmus. Were they indeed introduced after the conquest? McBryde (1947), in his classic study of the cultural geography of southwest Guatemala, claims that a desirable local potato, grown by farmers in Todos Santos (a Mam Maya town below the plateau to the west), was probably a pre-Columbian introduction. McBryde (1947) states that the potatoes grown by the Todos Santeros were more or less in a wild, weedy state. Perhaps nearby farmers traveled to and from the plateau and their potato fields from nearby towns such as Todos Santos, or they semi-propagated the weedy potato variety mentioned by McBryde (1947) near or in their maize fields at lower elevations. So possibly potato agriculture never evolved past collecting weedy potatoes on field margins. It seems likely that if potatoes were being grown on a large scale, there would have been permanent settlements on the plateau when the Spanish arrived, or at least enough potato production that this activity would have been recorded by the Spanish. J.D. Sauer (1993) in his *Historical Geography of Crop Plants*, as well as geographer and Andeanist Dan Gade, believe that potatoes were a post-contact introduction (Sauer 1993; Gade, personal communication).

Sheep production became the main economic activity on the Altos de Chiantla plateau by the 17th century and this economic importance of sheep ranching continues to this day (McBryde 1947; Lovell 2005). By the 17th century, tens of thousands of sheep grazed the Cuchumatán plateau. In fact, according to Lovell (2005), the Cuchumatán plateau contained some of the best pasture in Central America.

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FIGURE 3 Former glaciated valley on the Altos de Chiantla plateau. (Photo by Matthew Taylor)



Present-day changes and global linkages

While the Altos de Chiantla have hardly remained cut off from the outside world during the past 400 years, the area has remained one of the most isolated locations in Guatemala, and even Central America. In addition to spatial isolation of the plateau area, Guatemala is said to have retained a colonial economic, political, and cultural system longer than any other society in Central America (Paige 1997). Thus, this historic socioeconomic conservatism further contributed to the isolation of the Altos de Chiantla.

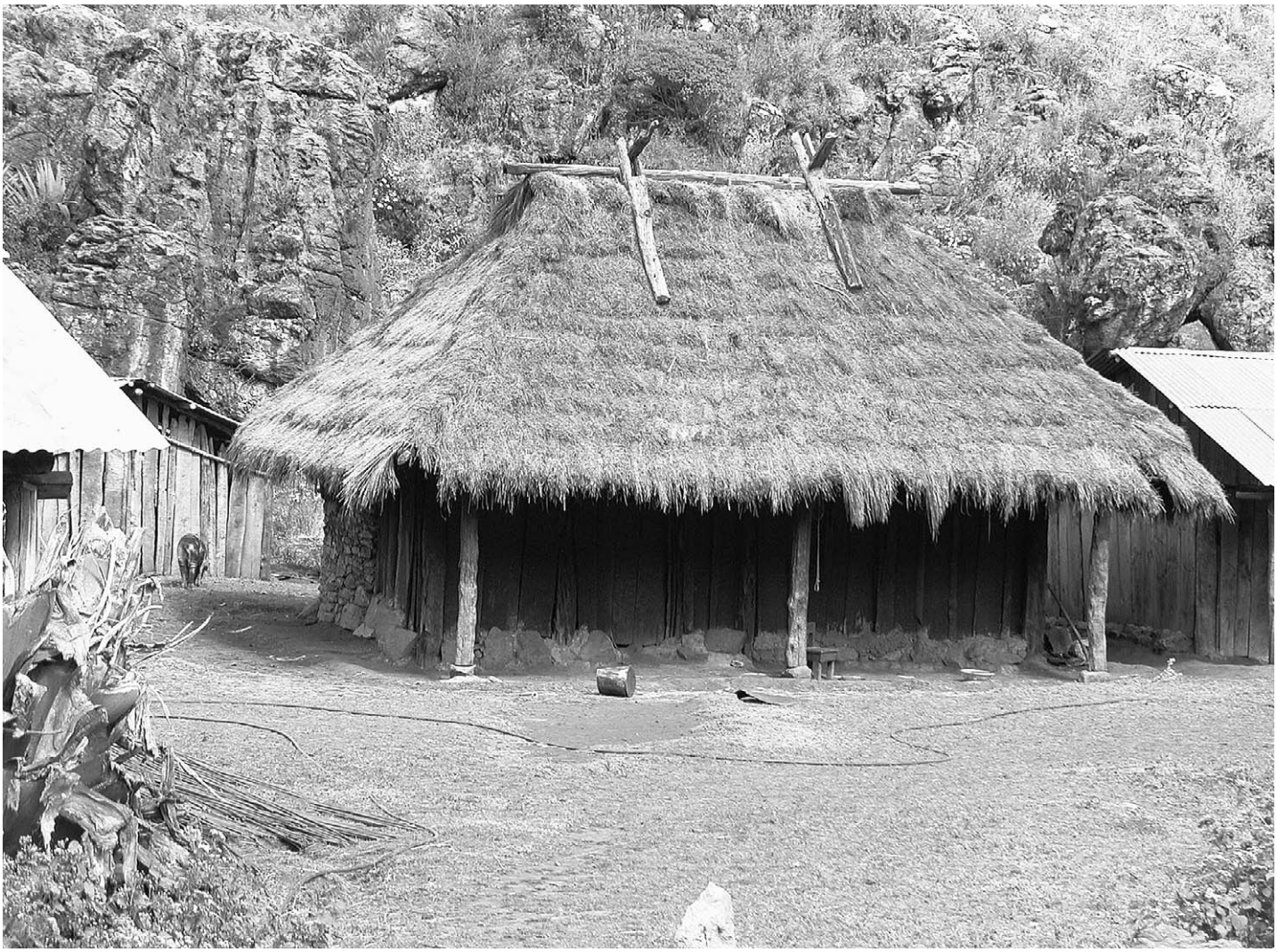
However, while the Altos de Chiantla remains remote, it has been increasingly drawn into and impacted by the world economy through international migration and the remittances sent home by its former residents, agricultural intensification projects, modernization of its sheep economy during the past three decades, and a vastly improved road network. Likewise, Maya residents in the plateau area were drawn into and impacted by Guatemala's 36-year civil war that ended in 1996.

The Altos de Chiantla plateau is found in the department of Huehuetenango, although the Sierra de los Cuchumatanes in its entirety stretches beyond this single department. Huehuetenango is predominantly a Maya region and stands as one of the most economically depressed departments in the country, with over 93% of its population living in poverty (United Nations 1999). In addition to high levels of poverty, Huehuetenango experienced extreme violence during the 36-year civil war, especially in the early 1980s (Kobrak 2003). As a result of poverty, insecurity created by civil war, and continued subdivision of land into plots of below-subsistence sizes, there has been a massive wave of outmigration from the department by individuals seeking brighter economic prospects and as a means to avoid violence. Every individual we interviewed had at least one family member who had left—usually bound for Guatemala City or the United States. In fact, of all the departments in Guatemala, with the exception of the Department of Guatemala (which includes Guatemala City), Huehuetenango has had the most people leave its towns and villages (Guatemalan National Census 2002; Taylor et al 2006).

In addition to the economic and cultural impacts of large numbers of often young people leaving the department, remittances sent back home have also impacted the Altos de Chiantla plateau area (see Jones 1995; Durand et al 1996; Jokish 2002; Taylor et al 2006 for a discussion of the varied impacts of remittances on development in Guatemala and elsewhere in Latin

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FIGURE 4 Traditional house type in the high Cuchumatanes. (Photo by Michael Steinberg)



America). Remittances have allowed families to alter the built environment and invest in agricultural modernization efforts. For example, new cinder-block houses have sprung up even in the most remote areas of the plateau. All of our informants claimed that remittances had directly impacted their daily lives, usually allowing them to expand or build homes. Although it is important to point out that while there are financial benefits, many complained that as more people leave, both families and villages suffer. It is stunning to return to a remote area after a two-year absence or so, and instead of finding the traditional Maya house types that once existed, some with wooden shingle or grass roofs (Figure 4), one finds two-storey cinder-block houses with corrugated roofs. One informant joked that replacing the grass roof means that he no longer "lives with the rats." Many new and old homes alike also have electricity, which arrived in 2002–2003 (Taylor 2005).

The conversion of traditional-looking villages (based on house types) to villages with houses that contain new materials and styles has created a remittance landscape on and around the plateau (Figure 5). All informants had altered their houses in some fashion with remittance money, often creating a combination house type that was both traditional and modern. Many return migrants also purchase pick-up trucks. Private transport also allows potato and sheep farmers to command a better price for their products because they take the products to market rather than waiting for buyers to find their way out to rural homesteads. "With my truck, I no longer need the buses, or the buyers who make all the money, I keep more money now," one informant told us.

Despite the changes that migration brings to the high plateau, the ways in which residents earn a living from the land remains little changed. Residents still

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FIGURE 5 New, two-storey house built with remittance money from the USA. (Photo by Matthew Taylor)



produce the same products that their forefathers did—potatoes and sheep as the dominant products. All our informants were still involved in potato production, and 21 were involved in sheep ranching (at various scales). The harsh environment of the high plateau in the Cuchumatanes simply cannot support other forms of agriculture.

While sheep production has a long history in the high Cuchumatanes, modernization efforts have also impacted this industry in recent years. When speaking with informants, several explained how they had imported new breeding stock from Wyoming, USA. The improved ewes bear several lambs, thus increasing profits for owners who supply meat to the rest of the nation. While new breeding stock was considered desirable, only 10 of the 24 informants had incorporated it in their flocks. New technology is often closely guarded so as to provide a competitive advantage. Cost and availability were most often cited as reasons why shepherds had not purchased improved ewes. Residents also told us that there had been an increase in the demand for lamb and mutton given the growing national population in Guatemala, and the growing popularity of meat. Thus, national population growth, often blamed in Guatemala for various environment problems such as increased deforestation, is seen as a boon to the sheep industry. Wool also remains in demand within Guatemala, as it has for centuries, especially among artisan weavers such as those in the weaving center of Momostenago, a K'iche' Maya town. These same shepherds were optimistic about the future prospects of their industry.

Soil erosion due to overgrazing has been noted as a serious problem in the Altos de Chiantla (Islebe et al 1995), and it seems that growing demand for mutton will exasperate this problem. However, erosion was not mentioned as a concern among most informants. Twenty of our informants claimed they saw "little or no" increase in erosion during the past 5 years due to sheep ranching. The other 4 informants claimed that while erosion had increased, it was usually due to rain fluctuations and was short-term, rather than a result of increased grazing pressure.

In addition to concerns over pasture degradation and associated soil erosion, the Altos de Chiantla forests have also been impacted by humans for centuries. Today, there are no large stands of intact high- elevation forests on or near the plateau (Islebe 1993). The only significant stands of juniper, pine, or fir exist on steep slopes. Local residents continue to harvest branches and cut entire trees for fuelwood, building materials, and pine resin (Islebe 1993). Electricity has reduced some of the pressure on forest resources, but its use is not widespread enough to have substantially curtailed wood harvesting (Taylor 2005). While informants did not appear to recognize increased soil erosion, all complained about the lack of forest products, especially firewood. As one elderly informant told us, "The trees are almost all

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FIGURE 6 Landscape scene showing extensive rock walls, first built in the colonial era. (Photo by Matthew Taylor)



gone now. Not like when I was a boy. This is very hard on the old people who are poor." Another stated, "(development) agencies come and go, they waste money and time, why don't they help people with the trees, with (lack of) firewood?" When asked to rank how important the forest (or lack thereof) issue is, 22 of 24 informants claimed that the scarcity of wood and other forest products was "very important" or "severe."

Another indicator of the continued commitment to sheep ranching on the plateau is the maintenance of the intricate and expansive system of stone fencing. Hundreds (if not thousands) of miles of stone fences crisscross the plateau's grasslands (Figure 6). According to local people, some of these fences are centuries old, tracing their origin to when sheep were first introduced in early colonial times. Many of these walls contain a soil "pocket" on the top of the wall in which plants such as agave (*Agave hurteri*) are planted. We initially believed these stone walls would be giving way to wire fences as they crumbled and needed repairs. Similar to folk house types, traditional fencing often departs from the landscape due to the influence of new materials. Yet, wherever we traveled on the plateau, people were investing the time and energy in repairing, maintaining, and even completely rebuilding their stone walls. Only one of our 24 informants had partially converted to wire fencing. Modernization, in this case, did not mean replacing these structures with store-bought wire. Instead, people are taking great pains and pride to maintain these landscape features. One informant aptly summed up this pride when he stated, "These walls are part of the community, the people. Wouldn't you take care of them too?"

Conclusions

Initial observations by outsiders might lead them to conclude that the Altos de Chiantla has undergone little change, not only in the past few decades, but perhaps even in the past few centuries. For example, the area's ethnic makeup remains overwhelmingly Maya, and sheep and potatoes dominate the agricultural economy, and have done so for centuries. However, when examining the landscape more closely, one sees that changes are indeed taking place. Today, remittances sent back to the region by relatives working abroad are fueling a building boom. Traditional folk house types are being replaced by cinder-block houses with electricity. Even the traditional Mam Maya *chuj* (sweat bath) is now made out of cinder blocks instead of local rock and a live sod roof. More and more pick-up trucks are to be seen, another indication of outside money flowing in. Remittances from migrants have also allowed local residents to invest in agricultural modernization projects, which may ultimately lead to further environmental degradation on the plateau.

The Altos de Chiantla is at a historical crossroad. Greater contacts and connections with the outside

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world, accompanied by agricultural modernization projects, could lead to a further abandonment of traditional cultural identities and increased environmental degradation. Or they may lead to local people taking stock of the uniqueness of their cultural and environmental landscape, which in turn might lead to greater investments in more sustainable resource-use practices (ie reforestation efforts).

However, even with the encroachment of the global economy and the infusion of cash and the changes this has brought, life on the Altos de Chiantla plateau is still dictated mostly by the movement of sheep, the seasonal variation of rains, and the potato harvest. While globalization is impacting this region, the region also continues to maintain its long-standing identity as one of the more distinctive landscapes within Mesoamerica.

Current and future research by the authors includes a palynology study of sediment cores taken from the Altos de Chiantla plateau which will shed light on past human impacts on vegetation, pre-Columbian forest cover, and possibly provide a chronology of when, more specifically, people and agriculture entered the landscape. In addition to the authors' research, studies that examine fuelwood consumption and range management in the high Cuchumantes will benefit the local population and answer questions regarding sustainability in this unique region.

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