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Michael K. Steinberg and Matthew Taylor

The Impact of Political Turmoil on Maize Culture and Diversity in Highland Guatemala

This article compares the current state of maize diversity in 6 highland indigenous Maya Guatemalan villages with studies conducted earlier in this century. Although findings are preliminary, it appears that a significant number of maize varieties are no longer grown, as determined from comparisons with data collected earlier in this century. The authors believe that this decline is related to the recently concluded (1996) Guatemalan civil war and the associated poor socioeconomic conditions in which most rural Guatemalans exist. We present the case for the direct link between the maintenance of crop diversity and the political and economic atmosphere or security in peasant farming landscapes.

Keywords: *Maize diversity; Maya farmers; civil war; traditional agriculture; religious change.*

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Introduction

The decline of crop plant diversity is part of the larger global decline of biodiversity occurring at an alarming rate (Brush et al 1988; Iltis 1988). This decline is considered a critical environmental issue because it ultimately threatens the global food supply (Frankel and Hawkes 1975; Fowler and Mooney 1990; Guzman-Mejía and Iltis 1991). The domestication hearths of the world's most important crops such as Mexico (maize), Andean South America (potatoes), Southeast Asia (rice), and the Near East (wheat) (Fowler and Mooney 1990) are well documented. Highland Guatemala is also an important diversity and domestication hearth of maize (Mangelsdorf and Cameron 1942; Iltis et al 1986). Relative to its size, Guatemala has greater maize diversity than any other country in the Western Hemisphere; and within Guatemala, the Huehuetenango to Coban highland axis contains the greatest concentration of local varieties (Figure 1) (Wellhausen et al 1952). Mangelsdorf and Cameron (1942) reported more varieties of maize along this axis, which is half the size of Iowa, than in the entire United States. Despite this diversity of maize, research in Guatemala lags behind that in other crop diversity hearth countries, such as Mexico, Peru, and Bolivia, largely because of the recently concluded 40-year civil war. The areas housing the most maize diversity in Guatemala are predominantly indigenous Maya. This belt of maize diversity and indigenous Maya cultures experienced the main brunt of government brutality, making research in the zone almost impossible. Indeed, many of the villages we visited had witnessed massacres and subsequent outmigration (Montejo 1999; REMHI 1998). We present data from Guatemala that contribute to the coverage of the state of maize diversity in the Americas. The data were gathered in a rapid appraisal-type study to provide preliminary information on the status of maize diversity in an important domestication hearth. In doing this, we examined the larger impact of social change—especially events related to the recently concluded civil war—on maize diversity in Guatemala. We propose that agricultural practices and diversity cannot be separated from the larger social circumstances in which peasant farmers exist. On the basis of our preliminary investigations, maize diversity has declined in highland Guatemala, and this decline appears to be related to various aspects of political and social turmoil.

The highland axis running roughly between Huehuetenango and Coban is of particular importance in terms of diversity and the symbolic meaning of maize among Guatemala's Mayan cultures (Johannessen 1982). The rugged terrain and historically isolated villages result in literally dozens of maize varieties evolving in relative isolation of one another. Because of this diversity, we focus on villages within this axis, albeit on the western edge (Figure 1).

Theoretical considerations

An important component of this study is the impact of Guatemala's civil war on maize diversity and maize-related traditions. The study of the impact of warfare and

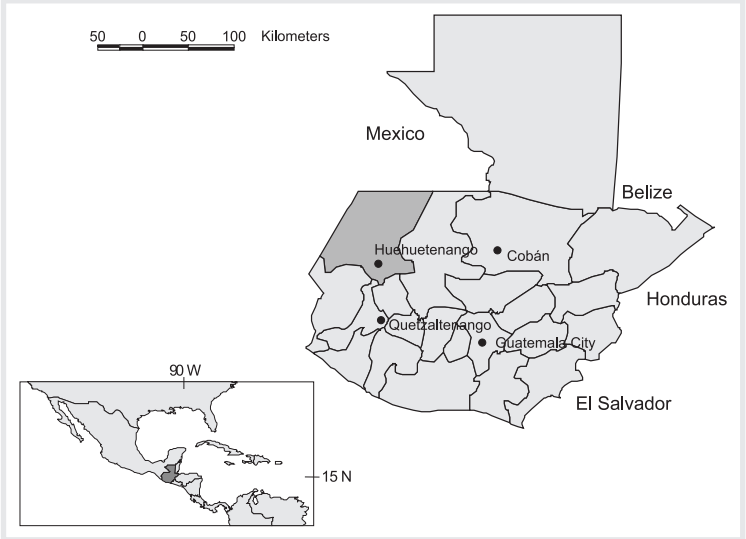


FIGURE 1 General map of Guatemala, indicating the Coban to Huehuetenango axis. (Map by Matthew Taylor)

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political violence on agricultural systems and crop diversity has not been a major research theme among either social or agricultural scientists. Similarly, ethnography of war zones or postwar zones, in general, has been neglected by social scientists (Wilson 1991). This is unfortunate because at any given moment dozens of conflicts rage in many agrarian developing countries, most with devastating human and environmental consequences. There are studies concerned with the impact of war or conflict and peasants in general, such as Wolf (1969), Scott (1976), Popkin (1979), Watts (1983), Hammond and Druce (1990), and Peluso and Watts (2001), but these have not dealt with crop diversity specifically. There are a few exceptions, such as the case of Peru, where the Centro Internacional de la Papa has investigated the impact of the Shining Path on peasant potato farmers (Gade, personal communication), and an outstanding workshop and subsequent publication by the Food and Agriculture Organization of the United Nations that dealt with war and seed stocks in several conflicts, such as those in Afghanistan and Angola (FAO 1998). However, even the FAO's (1998) effort deals more with emergency seed supply in war-torn disaster areas and not with the factors behind the abandonment of local crop diversity.

In Guatemala, where there has been an explosion of recent publications that deal with the aftermath of the 40-year civil war, few researchers have examined the specific impact of the war on specific agricultural practices. This is not a criticism, for many publications provide great insight into various aspects of rural life during and after the war (eg, Annis 1987; Carmack 1988; Manz 1988; Falla 1992; Stoll 1993; Lovell 1995). However, most speak in general terms about the war and agriculture, for example, in describing declining food production or struggles of refugee farmers. Of the various recent studies focusing on indigenous people in Guatemala, the present study is most influenced by the work of Wilson (1991, 1995), who examined the impact of Guatemala's civil war on Q'eqchi' religious practices, many of which directly involve agricultural rituals. As discussed below, Wilson (1991, 1995) documents how military repression limited or ended the participation of Maya residents in rituals—particularly those focused on events related to agriculture, such as planting and harvesting. This study takes this relationship one step further by discussing how military repression led to not only a decline of rituals but also a decline in the number of maize varieties planted by Maya farmers, some of which were used in religious rituals. While Wilson's studies took place in Alta Verapaz, east of the study area discussed in the present article, the Maya inhabitants of western Guatemala, where the focal villages in this study are located, suffered similar impacts resulting from military activities.

The larger field of political ecology provides a useful framework to examine larger-scale sociopolitical influences, such as warfare or economic impacts, on local agricultural activities and crop diversity. Central to this perspective and investigation is the idea that a decline in crop plant diversity cannot be understood in isolation from the political, economic, and social context in which this decline takes place. This context has been referred to as a politicized environment (Bryant and Bailey 1997). In much of highland Guatemala, this politicized environment was often violent and completely disruptive of traditional agricultural practices, especially during the 1970s and 1980s. The present study, therefore, contributes both to the larger field of political ecology as well as to the neglected study of the impact of war or conflict on traditional agriculture and crop diversity.

Research hypothesis

The Huehuetenango to Coban highland axis presents a dynamic location for field studies investigating the cultural ecology of maize production not only because of the maize diversity it houses but also because this region and the Maya inhabitants responsible for this diversity suffered radical cultural and landscape changes during years of war (Stadelman 1940; Wellhausen et al 1952; Carmack 1988; Lovell 1995; Carlsen 1997; REMHI 1998; CEH 1999). Guerrillas, the Guatemalan military, and civilians clashed violently in this terrain, resulting in large-scale displacement of the peasant population along with thousands of deaths (Le Bot 1995; Wilson 1998; Jonas 2000). At the height of conflict in the early 1980s, this region was zoned "red" by government security forces (Schirmer 1998). Red zones consisted of enemy territory, where "no distinction was made between *guerilleros* and their peasant sup-

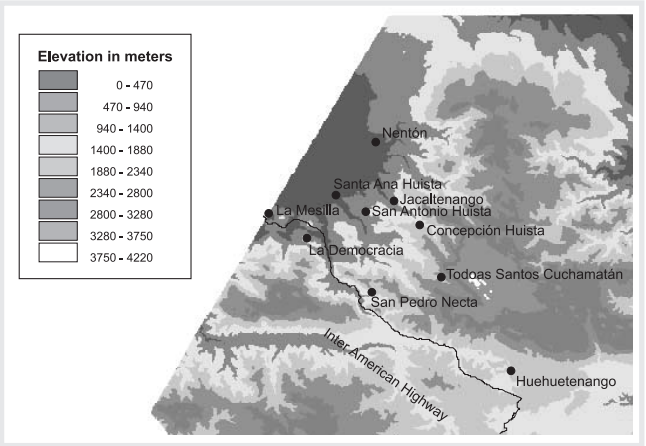


FIGURE 2 Topographic map of the Cuchumatán range and study villages. (Map by Matthew Taylor)

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porters. Both were to be attacked and obliterated" (Schirmer 1998, p 42).

Because of the cultural, political and ecological changes associated with the civil war that have occurred in the study area for the past 50 years, we hypothesized that there would be fewer maize varieties planted today by Maya farmers than were recorded in earlier studies conducted before the intense periods of the civil war (ie, Stadelman 1940; Mangelsdorf and Cameron 1942; Anderson 1947; McBryde 1947; Wellhausen et al 1952). Research in other food hearths elucidates the connections between crop diversity and cultural change—diversity does not exist in a cultural, ecological, or economic vacuum (Clawson 1985; Bellon and Brush 1994; Zimmerer 1996; Steinberg 1999). This is potentially the case in highland Guatemala, where Maya residents weathered brutal repression at the hands of the military for the past 40 years. Based on preliminary results, our hypothesis is partially confirmed.

Fieldwork and results

We visited 6 Guatemalan towns in May 2001. These towns, nestled in remote valleys of the Cuchumatán mountain range, include Todos Santos Cuchumatán (2450 m), Concepción (2400 m), San Pedro Necta (2100 m), San Martin Cuchumatán (1830 m), Jacaltenango (1400 m), and San Antonio Huista (1220 m) (Figure 2). We interviewed farmers from each town in their fields, homes, hardware stores, on the road, etc. The Cuchumatán range is rugged, with some of the highest peaks in Central America (the highest peak reaching about 3660 m) (Figure 2). High, cold plateaus (2335–3035 m) within this range have been cultivated for such an extended period of time that these landscapes now resemble natural paramo. However, this appearance is more likely due to centuries of sheep grazing, firewood collecting, and potato cultivation than to natural climate factors (Figure 3) (Lovell 1992; Elías et al 1997).

We interviewed 10 farmers from each village in order to begin to compare present-day maize diversity with data collected earlier in this century (such as Stadelman 1940; Mangelsdorf and Cameron 1942; Anderson 1947; McBryde 1947; Wellhausen et al 1952). All farmers we interviewed were men. When the authors did speak to women, who were often shucking corn of various types on their house porches, we received very stilted responses regarding maize diversity. Women used the generic names of yellow, red, white, and mixed to

FIGURE 3 Highland landscape in the Cuchumatán range. (Photo by Michael K. Steinberg)



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FIGURE 4 Maize field above Todos Santos Cuchumatán (Photo by Michael K. Steinberg)



describe their maize. Whether these responses were a result of less knowledge about maize types among women—as many highland women have a limited ability to speak Spanish—or simply the result of foreign men asking "male questions" in women's houses, we could not discern. Documenting female knowledge concerning maize diversity will be a subject for further exploration in future longer-term research, when a stronger connection with informants can be established. The issue of genetic diversity recognition and knowledge among Guatemalan women is a topic for further research, especially in light of extensive male migration to the United States, leaving agriculture in the hands of females or paid laborers. Because of its detail regarding the number of varieties grown by Maya farmers, Stadelman's (1940) study provides much of the baseline information from which we draw conclusions regarding the maintenance or abandonment of individual maize varieties**.** Even if a farmer did not plant a particular maize variety, we considered the variant present if he recognized the name, gave a brief description of its agroecology, and identified areas where it is currently cultivated.

There is no way to determine the precise number of maize varieties grown in the past because past researchers probably collected varieties with some degree of bias. For instance, many collected for agroeconomic versus cultural ecological purposes, or they investigated diversity in marketplaces versus households. Thus, they were likely to miss certain varieties. However, even if a past bias existed, comparing past and present diversity in the same study areas and investigating the existence of the same varieties provide insight into changes in maize diversity since the time of the original studies. We chose 6 towns from the list of 21 villages studied by Stadelman (1940) because of their proximity to one another, which allowed us to cover more ground in a limited amount of time. Todos Santos Cuchumatán was selected because it was the focal village of Stadelman's (1940) study. Although he did not list the number of varieties grown in Todos Santos, he did investigate maize culture in the village. Therefore, we also interviewed village farmers regarding changes in maize cultivation practices and rituals associated with the plant (Figure 4). A future, larger-scale study will investigate diversity in all 21 villages studied by Stadelman (1940), as well as other villages in the axis such as those in the Ixil region.

Our field investigation points to fewer varieties planted today than previously recorded (Table 1). Decline in maize diversity was most notable in Concepción Huista. Farmers from this town planted and recognized only 3 of the 12 varieties described by Stadelman. We encountered similar declines in all other towns except San Antonio Huista, where Stadelman recorded these varieties using generic Spanish names (*blanco,*

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TABLE 1 Maize varieties recorded by Stadelman (1940) and in the present study.

Town	Number of maize varieties recorded by Stadelman	Number of maize varieties recorded by Steinberg
Concepción Huista	12	3
San Martin Cuchumatán	4	2
San Pedro Necta	3	2
Jacaltenango	8	3
San Antonio Huista	3	3
Total	30	13

negro, and *pinto*) instead of indigenous titles. This is likely an indication of the early abandonment of indigenous varieties. Stadelman (1940) describes San Antonio Huista as a ladino-dominated town where the indigenous inhabitants abandoned much of their traditional culture. Today, San Antonio Huista is a bustling commercial town; therefore, the adoption of improved commercial varieties of maize is not surprising. Overall, of the 30 varieties recorded by Stadelman in the 5 study villages, only 13 were recorded during this fieldwork (Table 1). New varieties have been grown in the region since the many studies conducted earlier in this century. However, these are introduced, commercial Green Revolution-type varieties that have not evolved in a local cultural or ecological context. They do not appear to be as finely adapted to specific elevations or soil types as do the indigenous varieties recorded by Stadelman (1940), nor do these new varieties replace the genetic storehouse, on the basis of thousands of years of trial and error, isolation, and evolution, that local varieties represent.

Factors responsible for the decline of maize biodiversity

Green Revolution varieties may have weakened the interest of farmers and led to the abandonment of some local varieties. However, farmers in Todos Santos stressed that improved seeds are expensive and that after initial experimentation many farmers return to local varieties. Indigenous farmers in Peru and Mexico often incorporate new varieties into their crop complex without totally abandoning local varieties (Bellon 1991, 1995; Bellon and Brush 1994).

In the case of the towns we studied, and possibly highland Guatemala in general, the socioeconomic landscape in which farmers maneuver is far too complicated to attribute the loss of local maize varieties exclusively to introduced seeds. Other variables that influence maize farming and diversity of maize varieties include the direct impacts of civil war in the form of deaths, disappearances, displacements, and the abysmal socioeconomic conditions of the highland Maya (Sistema de las Naciones Unidas en Guatemala 1999). First, the daily lives of thousands of highland residents were obliterated by the Guatemalan military. Between 1981 and 1996, the Guatemalan military and the guerrillas destroyed 440 villages (mainly in the western highlands) in a scorched earth military strategy, murdered or "disappeared" 150,000 civilians, and created a million-strong internally displaced population (Ball et al 1999; Jonas 2000, p 24). Guatemalan government forces are responsible for 93% of deaths and abuses perpetrated during the civil war (CEH 1999). Thousands of the displaced Maya farmers and their families left for refugee camps in Mexico (Manz 1988). The flight of thousands of highland residents to the tropical lowlands and the capital city disrupted farming practices and associated rituals (Wilson 1995; REMHI 1998). Rapid, unplanned departures from highland communities forced residents to abandon maize seeds and other ritual items that the military then destroyed and burnt (Falla 1992). If any seeds did survive the long journey to Mexico and other locations within Guatemala, it is unlikely that they prospered in lowland tropical heat and soil. In other words, highland maize farming and Maya "maize culture" were not easily duplicated in lowland refugee settings. The Guatemalan military closely monitored the actions of individuals who remained and forced residents to perform mandatory labor, such as serving in the civil patrols. The Guatemalan military often concentrated dispersed groups of farmers into what could be considered modern-day *reducciones*. The military closely monitored all the activities of village occupants and severely restricted access to distant fields (Wilson 1998). Farmers spent less time in their fields and reduced participation in any religious–ritualistic practices that were considered suspicious by the military. As a result of the social mayhem and complete rupture of farming practices, food harvests in 1983 were 60% lower than normal (Smith 1988).

Although Wilson (1991, 1995) focused on the impact of military repression on the Maya relationship with the symbolic landscape, his work supports our identification of the link between military repression and declining maize diversity. Maize farming and certain varieties are part of the "constitutive elements of the symbolic universe" (Wilson 1991, p 34). Wilson (1991) was told that Maya farmers in hiding were not able to perform traditional rituals, many of which focused on maize farming; this was similar to what we found. Informants claimed they were not able to visit or enter caves to perform such rituals because of military surveillance. Also, when Maya farmers and their families were displaced, they were forced to adapt to an entirely new landscape in which they had no previous

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cultural historical connection. Furthermore, many elders died at the hands of the military or because of the harsh conditions in which refugees were forced to exist. This further undermined the motivation to continue with maize-related rituals. Steinberg (1999) found a similar relationship between the abandonment of traditional rituals and declining maize diversity that was largely due to the influence of missionary activities in southern Belize among Mopan Maya maize farmers.

Wilson (1991) found that those Maya who chose not to flee were often resettled in model villages by the military, which further undermined traditional maize-related rituals. The main purpose of model villages was to control civilian movement, which limited the potential of civilians to contact and aid guerrillas in the mountains. But because farmers were confined to villages and closely monitored, it was impossible to continue the traditional rituals performed in caves and mountains. Wilson (1991, 1995) claims that this new restricted social setting was incompatible with traditional Maya agricultural cosmology. Similar to our conversations, Wilson (1991) found that because these rituals were discontinued during the 1980s and early 1990s, many have not been started up again even though the war has ended. Although farming may first appear as simply an economic activity, it is critical not to underestimate the spiritual and ritualistic importance of maize farming and maize diversity among the Maya. Maya cultural identity and traditional Maya-Catholic religion cannot be separated from maize and maize farming.

In addition to the impact of violence on farming rituals, the deterioration of socioeconomic conditions during the last 50 years in most highland villages has produced an environment that restricts farmers' choices and their ability to maintain diverse assemblages of maize varieties. Land tenure problems and the extremely unequal distribution of land (2% of the population own 65% of the land) continue to fuel social tension in rural Guatemala (Villa and Lovell 1999; Jonas 2000). Eighty-eight percent of the farms are smaller than 7 hectares, and the Gini coefficient is 85%—the highest in Central America and one of the highest in the Western Hemisphere (Southgate and Basterrechea 1992). Maya farmers grow maize on plots of land that decrease in size with every generation because land is subdivided among offspring (Davis 1997). Average plot size of farms below 1.5 hectares has decreased from 0.7 hectare in 1964 to 0.19 hectare in the 1990s because of population increase on a land base that is not getting any larger (Bilsborrow and DeLargy 1990; Elías et al 1997). An increase in population from 5 million in 1950 to 12 million people in 2000 only exacerbates population pressure on the land but does not fully explain the land problem in Guatemala. Land in rural areas is often claimed by rival communities (Stoll 1999), commercial interests, and in some cases the military (Lovell 1995). Tenure and title to rural lands are often disputed, with more politically and economically connected individuals manipulating a corrupt system to their advantage. Reliance on smaller and smaller plots does not allow farmers to experiment and maintain enough geographic distance between maize varieties to prevent crossbreeding.

Desperate economic conditions coupled with years of unceasing violence have spurred thousands of rank and file maize farmers to leave Guatemala, and their highly prized land, as economic refugees. It has been estimated that anywhere from 10% to 15% of Guatemala's population now works and temporarily resides in the United States (Jonas 2000). Males dominate this wave of migration to the United States, leaving land and maize cultivation in women's hands (Dary 1994). Although it is impossible to determine the impact that migration has on maize diversity, it is logical to speculate that fewer farmers translate into fewer individuals growing certain varieties. On the other hand, during the past few years, in an effort to escape the economic binds of traditional crops, some farmers have almost completely turned away from maize production to grow high-value vegetables for local and international consumption (Goldin 1996). Large amounts of broccoli are cultivated around Concepción Huista. Vegetable cultivation in this area was initiated by international nongovernmental organizations (NGOs). Many farmers said they grow broccoli on land previously occupied by maize; others said irrigation provided by the NGOs allows them to farm new (ie, previously uncultivated) mountain slopes. Although this strategy has undoubtedly benefited some farmers economically, maize culture and ultimately diversity are further diminished as more nonritualistic crops are introduced, whose prices are often subsidized by NGOs.

Disruption and abandonment of Maya-Catholic religious traditions due to the growing numbers and the influence of evangelical Protestant converts also play an important role in the decline of maize diversity in this region of Guatemala. Maya-Catholic rituals incorporate specific maize varieties or the maize-farming calendar, whereas the Protestant sects that blossom in the Guatemalan countryside frown upon these aspects of maize farming. The disruption or abandonment of certain practices when thousands of Catholics converted to Protestantism may have led to the abandonment of certain maize varieties incorporated in these rituals (Wilson 1995). The Maya-Catholic faith and its connection to the agricultural cycle generally and maize farming specifically are closely interwoven. Thus, as highland Maya Guatemala converted to evangelical denominations in growing numbers, especially during the 1970s and 1980s, and again as the military prevented farmers

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from being in their fields as much as possible by imposing curfews and obligatory work (Wilson 1995), the need to continue planting certain varieties decreased. Maya-Catholic village officials, office holders in the civil–religious hierarchy or cargo system (Wolf 1957; Cancian 1965), were targeted by the military because Catholicism, in the eyes of the military, was directly associated with communism and antigovernment forces (Diócesis del Quiché 1994; REMHI 1998). Because these individuals were driven out or murdered, the foundation of the religious rituals crumbled. Today, in some highland villages, even though the war has ended, the cargo system has not recovered to its pre-1980 prominence (Stoll 1993). The ceremonial and ritualistic landscape that incorporated various aspects of maize culture is no longer so prominent in many villages.

Although there are various factors that help explain the large number of Maya conversions, many theories involve General Ríos Mont, the dictator at the height of Maya massacres in the early 1980s. Ríos Mont was a member and vocal proponent of the new religion, claiming that Guatemalans were the new Israelites, whose mission was to create the first Latin American evangelical Protestant state. Many Maya villagers joined evangelical churches in large numbers in part to "prove" allegiance to the state and to avoid certain death (Westropp 1983; Le Bot 1995). According to Stoll (1993, p 5), in the Ixil area, "The Catholic Church, driven underground after the army killed three Spanish priests and hundreds of local leaders, reported that parishioners were turning Protestant to save their lives." Being Catholic was tantamount to being a rebel or rebel sympathizer in the war zone areas because of associations with liberation theology, church-supported cooperatives, literacy programs, etc. Now, evangelical churches of various sects invade even the smallest of hamlets in the Guatemalan countryside. Their loud "broadcast-style" preaching and singing over loudspeakers besieges the homes of both Catholics and evangelicals. Given these circumstances, it is perhaps not surprising that many public and private Maya-Catholic rituals ceased or are celebrated by fewer individuals. Again, as the rituals associated with maize cultivation and ceremonies that involve maize decline in importance, the need to grow certain varieties may also decline.

Conclusions and implications for policy makers

Although preliminary, this fieldwork among 6 highland Maya communities in Guatemala provides some potentially important information for policy makers and researchers concerned with the loss of crop plant diversity. First, highland Guatemala, like so many centers of crop plant diversity, appears to have experienced a decline of maize diversity during the last 50 years. Future, more in-depth research among these and other highland Maya villages in the same region will seek to further document this conclusion, as well as expand analyses of the connection between maintenance of traditional agricultural practices and traditional religious practices and rituals. However, on the basis of our rapid appraisal approach, maize diversity has declined in the focal villages. Second, cultural and political instability driven by military actions during the civil war appears to play an important role in the maintenance or abandonment of traditional agricultural practices (including crop plant diversity) and associated religious–spiritual beliefs. In highland Guatemala, military and paramilitary forces often targeted Maya-Catholic religious leaders, resulting in the mass exodus or assassination of religious figures or in the abandonment of traditional Maya-Catholic rituals (or both), many of which centered around maize and maize farming. Therefore, targeting conflict zones in or around crop plant diversity hearths for germplasm collection and conservation may be a sound policy. Collecting germplasm during times of conflict could make it possible to reintroduce certain varieties when the political situation becomes more stable. Although this option is likely problematic, given the severe and sometimes permanent socioeconomic changes that are initiated by social conflict, reintroductions are at least worth exploring in especially diverse agroecological landscapes. Lastly, and perhaps most importantly, this research indicates that agricultural practices and diversity cannot be separated from the larger social circumstances in which peasant farmers exist. We can focus research efforts and financial resources on collecting individual plant varieties; however, if we do not consider and understand the plight of the individual farmer as well, Western researchers will never be able to protect crop plant diversity in a sustainable fashion.

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REFERENCES

Anderson E. 1947. Field studies of Guatemalan maize. *Annals of the Missouri Botanical Garden* 34:433–467.
Annis S. 1987. *God and Production in a Guatemalan Town.* Austin, TX: University of Texas Press.
Ball P, Kobrak P, Spirer HF. 1999. *State Violence in Guatemala, 1960–1996: A Quantitative Reflection.* Science and Human Rights Data Center; hrdata.aaas.org/ciidh/qr/english/. Accessed on 6 Aug 2002.
Bellon MR. 1991. The ethnoecology of maize variety management: a case study from Mexico. *Human Ecology* 19(3):389–418.
Bellon MR. 1995. The dynamics of crop intraspecific diversity: a conceptual framework at the farmer level. *Economic Botany* 50:26–39.
Bellon MR, Brush SB. 1994. Keepers of maize in Chiapas, Mexico. *Economic Botany* 48(2):196–209.
Bilsborrow RE, DeLargy PF. 1990. Land use, migration, and natural resource deterioration: the experience of Guatemala and the Sudan. *Population and Development Review* 16:125–147.
Brush SB, Bellon Corrales M, Schmidt E. 1988. Agricultural development and maize diversity in Mexico. *Human Ecology* 16(3):307–328.
Bryant RL, Bailey S. 1997. *Third World Political Ecology.* London: Routledge.
Cancian F. 1965. *Economics and Prestige in a Maya Community.* Stanford, CA: Stanford University Press.
Carlsen R. 1997. *The War for the Heart and Soul of a Highland Maya Town.* Austin, TX: University of Texas Press.
Carmack RM, editor. 1988. *Harvest of Violence: The Maya Indians and the Guatemalan Crisis.* Norman, OK: University of Oklahoma Press.
[CEH] Commission for Historical Clarification (Comisión para el Esclarecimiento Histórico). 1999. *Guatemala, Memory of Silence/Tz'inil Na'Tab'al.* Report of the Commission for Historical Clarification. World Policy Institute; worldpolicy.org/americas/guatindex.html. Accessed on 6 Aug 2002.
Clawson DL. 1985. Harvest security and intraspecific diversity in traditional tropical agriculture. *Economic Botany* 39(1):56–67.
Dary C. 1994. *Entre el Hogar y la Vega: Estudio Sobre la Participación Femenina en la Agricultura de El Progreso.* Guatemala City, Guatemala: FLACSO.
Davis SH. 1997. *La Tierra de Nuestros Antepasados: Estudio de la Herencia y la Tenencia de la Tierra en el Altiplano de Guatemala.* La Antigua, Guatemala: CIRMA; South Woodstock, VT: Plumstock Mesoamerican Studies.
Diócesis del Quiché. 1994. *El Quiché: El Pueblo y su Iglesia, 1960–1980.* Santa Cruz del Quiché, Guatemala: Diócesis del Quiché.
Elías S, Gellert G, Pape E, Reyes E. 1997. *Evaluación de la Sostenibilidad en Guatemala.* Guatemala City, Guatemala: FLACSO.
Falla R. 1992. *Masacres de la Selva: Ixcán, Guatemala (1975–1982).* Guatemala City, Guatemala: Editorial Universitaria, Universidad de San Carlos.
[FAO] Food and Agriculture Organization. 1998. *International Workshop on Developing Institutional Agreements and Capacity to Assist Farmers in Disaster Situations to Restore Agricultural Systems and Seed Security Activities* [proceedings]. Food and Agriculture Organization, United Nations Organization; www.fao.org/WAICENT/FaoInfo/Agricult/AGP/AGPS/norway/Tabcont.htm. Accessed on 8 Aug 2002.
Fowler C, Mooney P. 1990. *Shattering: Food, Politics, and the Loss of Genetic Diversity.* Tucson, AZ: The University of Arizona Press.
Frankel OH, Hawkes JG, editors. 1975. *Crop Genetic Resources for Today and Tomorrow.* International Biological Program 2. Cambridge: Cambridge University Press.
Goldin LR. 1996. Economic mobility strategies among Guatemalan peasants: Prospects and limits of nontraditional vegetable cash crops. *Human Organization* 55(1):99–107.
Guzman-Mejía R, Iltis HH. 1991. Biosphere reserve established in Mexico to protect rare maize relative. *Diversity* 7(1/2):82–84.
Hammond J, Druce N. 1990. *Sweeter than Honey: Ethiopian Women and Revolution. Testimonies of Tigrayan Women.* Lawrenceville, NJ: Red Sea Press.
Iltis HH. 1988. Serendipity in the exploration of biodiversity: what good are weedy tomatoes? *In:* Wilson EO, editor. *Biodiversity.* Washington, DC: National Academy Press, pp 98–105.
Iltis HH, Kolterman DA, Benz BF. 1986. Accurate documentation of germplasm: the lost Guatemalan teosintes (Zea Gramineae). *Economic Botany* 40(1):69–77.
Johannessen, CL. 1982. Domestication process of maize continues in Guatemala. *Economic Botany* 36(1):84–99.
Jonas S. 2000. *Of Centaurs and Doves: Guatemala's Peace Process.* Boulder, CO: Westview Press.
Le Bot Y. 1995. *La Guerra en Tierras Mayas: Comunidad, violencia y modernidad en Guatemala (1970–1992).* Mexico: Fondo de Cultura Económica.
Lovell, WG. 1992. *Conquest and Survival in Colonial Guatemala: A Historical Geography of the Cuchumatán Highlands, 1500–1821.* Montreal, Canada: McGill-Queen's University Press.
Lovell WG. 1995. *A Beauty That Hurts: Life and Death in Guatemala.* Toronto, Canada: Between the Lines.
Mangelsdorf PC, Cameron JW. 1942. Western Guatemala: a secondary center of the origin of cultivated maize varieties. *Harvard University Botanical Museum Leaflet* 10:217–252.
Manz B. 1988. *Refugees of a Hidden War. The Aftermath of Counterinsurgency in Guatemala.* Albany, NY: State University of New York Press.
McBryde FW. 1947. Cultural and historical geography of southwest Guatemala. *Smithsonian Institute Social Anthropology Publication* 4:1–184.
Montejo V. 1999. *Voices from Exile: Violence and Survival in Modern Maya History.* Norman, OK: University of Oklahoma Press.
Peluso NL, Watts MJ. 2001. *Violent Environments.* Ithaca, NY: Cornell University Press.
Popkin SL. 1979. *The Rational Peasant: The Political Economy of Rural Society in Vietnam.* Berkeley, CA: University of California Press.
[REMHI] Recuperación de la Memoria Histórica. 1998. *Guatemala, nunca más. Impactos de la Violencia (Tomo 1).* Informe REMHI. Guatemala City, Guatemala: ODHAG [Oficina de Derechos Humanos del Arzobispado de Guatemala].
Schirmer J. 1998. *The Guatemalan Military Project: A Violence Called Democracy.* Philadelphia, PA: University of Pennsylvania Press.
Scott JC. 1976. *The Moral Economy of the Peasant: Rebellion and Subsistence in Southeast Asia.* New Haven, CT: Yale University Press.
Sistema de las Naciones Unidas en Guatemala. 1999. *Guatemala: el rostro rural del desarrollo humano.* Guatemala City, Guatemala: Magna Terra Editores.
Smith CA. 1988. Destruction of the material base for Indian culture: changes in Totonicopan. *In:* Carmack RM, editor. *Harvest of Violence: The Maya Indians and the Guatemalan Crisis.* Norman, OK: University of Oklahoma Press, pp 206–231.
Southgate D, Basterrechea M. 1992. Population growth, public policy and resource degradation: the case of Guatemala. *Ambio* 21(7):460–464.
Stadelman R. 1940. Maize cultivation in northwestern Guatemala. *Carnegie Institution of Washington DC Publication* 523:83–263.
Steinberg MK. 1999. Maize diversity and cultural change in a Maya agroecological landscape. *Journal of Ethnobiology* 19(1):127–139.
Stoll D. 1993. *Between Two Armies in the Ixil Towns of Guatemala.* New York: Columbia University Press.
Stoll D. 1999. *Rigoberta Menchu and the Story of all Poor Guatemalans.* Boulder, CO: Westview Press.
Villa G, Lovell WG. 1999. Land and peace: two points of view. *In:* North LL, Simmons AB, editors. *Journeys of Fear: Refugee Return and National Transformation in Guatemala.* Montreal, Canada: McGill-Queen's University Press, pp 40–54.
Watts MJ. 1983. *Silent Violence: Food, Famine and Peasantry in Northern Nigeria.* Berkeley, CA: University of California Press.
Wellhausen E, Roberts J, Roberts LM, Hernández XE. 1952. *Races of Maize in Mexico: Their Origin, Characteristics, and Distribution.* Cambridge, MA: The Bussey Institution, Harvard University.
Westropp M. 1983. Christian counterinsurgency. *Cultural Survival Quarterly* 7(3):28–31.
Wilson R. 1991. Machine guns and mountain spirits: the cultural effects of state repression among the Q'eqchi' of Guatemala. *Critique of Anthropology* 11(1):33–61.
Wilson R. 1995. *Maya Resurgence in Guatemala: Q'eqchi' Experience.* Norman, OK: University of Oklahoma Press.
Wilson R. 1998. Verdades Violentas: Las Politicas de Recordar el Pasado en Guatemala. *In:* Armon J, Wilson R, Palma Murga G, Palencia T, Sieder R, editors. *Guatemala 1983–1997: ¿Hacia Dónde Va la Transición?* Guatemala City, Guatemala: FLACSO, pp 48–70.
Wolf ER. 1957. Closed corporate peasant communities in Mesoamerica and central Java. *Southwestern Journal of Anthropology* 13:1–18.
Wolf ER. 1969. *Peasant Wars of the Twentieth Century.* New York: Harper and Row.
Zimmerer KS. 1996. *Changing Fortunes, Biodiversity and Peasant Livelihood in the Peruvian Andes.* Berkeley, CA: University of California Press.

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