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## Using Home Gardens to Decipher Health and Healing in the Andes

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*Home gardens are a pervasive component of Andean agricultural systems, but have been ignored in anthropological and agronomic research. Recent research in the indigenous community of Saraguro, Ecuador, employed a combination of in-depth interviews, free-listing, videotaped walk-throughs, and mapping to explore the role of home gardens, which are established and controlled by women. Findings reveal that, although gardens offer multiple benefits, they are overwhelmingly devoted to the cultivation of medicinal plants, operating as de facto medicine cabinets that supply women with most of the resources they need to treat family illnesses. Results also suggest that the natural history of home gardens mirrors transformations within the family, and that Saraguro women study the contents of their neighbors' gardens, using this knowledge as a foundation for deciphering the owners' economic and health status. New threats to the sustainability of home gardens threaten the foundation of Saraguro's ethnomedical system and women's authority in the home and community. [ethnobotany, gardens, Ecuador, women healers, family health]*

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All humans remake the world in their own image, transforming land- and seascapes into domestic, production, and ritual spaces. Perhaps, then, one might gain insights about individuals or groups by examining how and why people remodel the natural world. Our research in the Ecuadorian highlands suggests that the environment of the *huerta*, or home garden, illuminates some critical dynamics of a household. In particular, we argue that the home garden embodies a family's health needs, and stands as a tangible and conspicuous affirmation of a woman's identity as family health provider.

In the literature, home gardens are alternately termed *house*, *kitchen*, or *door-yard* gardens. We adopt the term *home garden* to place emphasis on the domestic focus of these plots and to avoid conveying a misleading impression that such gardens

have exclusively culinary applications (i.e., kitchen) or that they are always small in scale (dooryard). Such gardens are a ubiquitous component of family farming around the world (see Achmed et al. 1980; Allison 1983; E. Anderson 1967; J. Anderson 1980; Bittenbender 1983; Chavero and Roces 1988; Etkin 1994; Gliessman 1988; Horowitz 1967; Kimber 1973; Lamong et al. 1999; Menon and Prema 1975; Moreno-Black et al. 1996; Padoch and de Jong 1991; Westmacott 1992; Wilhelm 1975; Works 1990). Yet, in both ethnographic and agronomic research, home gardening has generally taken a back seat to the study of field agriculture; often, gardens are ignored or, at most, dismissed in a footnote as a trivial sideline to the field system (see Heiser 1985:207–210; Smith et al. 1992:443–444).

This dismissal is unfortunate and often inappropriate. Home gardens are structurally and functionally quite different from field systems, in several ways (see Anderson 1967:140; Bernáth 1986:224). They are more compact than fields, are located close by—often directly adjacent to—dwellings, and tend to be part of the domestic, rather than productive, sphere. Consequently, they are often “invisible” to the broader economy and undervalued by their owners. Nevertheless, home gardens are highly complex. Unlike the field system, home gardens tend to be intensively intercropped, and are often irrigated, composted, and vigorously tended year-round. The gardens are more densely planted, “multistoried,” and species-rich, often far exceeding the biologic diversity of typically monocrop production fields. They may be an important “Noah’s Ark,” preserving traditional species and varieties. At the same time, they serve as a key site for agricultural innovation, where new crops, varieties, and cultivation techniques are tested. As will also be shown, home garden products are primarily intended to address unique family needs, rather than being for sale. Thus, they make important contributions to household self-sufficiency and sustainability.

Fortunately, the research situation is changing and more attention is being given to home gardens, largely because of a revived interest in issues such as food security, sustainable development, women’s economic roles, biodiversity, indigenous intellectual property rights, and the global marketing of medicinal plants (see Balick and Cox 1996; Browner and Ortiz de Montellano 1986; Etkin 1994, 1986; Gliessman 1988; Gragson and Blount 1999; Landauer and Brazil 1990; Tomlinson and Olayiwola Akerele 1998; Westmacott 1992). Still, surprisingly few studies focus on the role of home gardens in ethnomedicine (Brownrigg n.d.).

The present study emerges from Finerman’s long-term research on the ethnomedical system of the indigenous Saraguro population of Ecuador’s southern Andes. Data reported here derive from longitudinal ethnographic fieldwork, including numerous field seasons documenting family health and women’s healing roles. New, systematic study of the therapeutic foundation of home gardens was initiated between 1997 and 2000.

## Setting

Saraguro is a bi-ethnic community; the town center is inhabited primarily by several thousand self-described *blancos* (whites) of Spanish descent, whereas the surrounding barrios are occupied almost exclusively by self-identified *indígenas* (Indians) descended from the region’s original Quichua settlers. This study concentrates on the indigenous community; following convention, we refer to them as

the “Saraguro.” About fifteen thousand Saraguro people live in the region, while another five thousand or so reside in other cities and agricultural communities. Despite this dispersed distribution, our fieldwork reveals that most maintain close ties and often part-time residence in their home barrios, and, although there is some intermarriage and acculturative pressures, the vast majority of Saraguro indígenas remain ethnically endogamous, continuing a longstanding tradition of marrying within the local indigenous population (Belote 1978).

The district is located at an altitude averaging about six thousand feet, and Saraguro agropastoral land-use patterns mirror the complex geomorphology of this Andean setting. The area encompasses four ecosystems. High altitude wooded mountaintops, or *páramos*, are primarily exploited for woodcutting, while high plateaus, or *cerros*, are used chiefly for communal herding activities. Mid-altitude terrains feature the most intensive habitation and farming, whereas geologically young ravines—which are generally too steep for much use—are usually carved with footpaths and with irrigation canals that feed fields. Of note, all four of these ecosystems are also exploited to harvest an extensive variety of wild medicinal plants.

Saraguro agriculture has three highly distinct components: field agriculture, pastoralism, and home gardens. Field agriculture comprises smallholder plow agriculture. The main staple, maize, is interplanted with beans and squash; potatoes, wheat, barley, and peas are also important and are sometimes rotated with fodder crops as private pasturage. A household’s fields are usually small (< 1 ha each) and dispersed across the landscape, both to spread the risk of crop failure and as a consequence of bilateral inheritance patterns. Historically, most field production was consumed within the household; more recently, an increasing proportion of production is sold at market. In the pastoral production system, families maintain herds of cattle, moving them between private pastures in the valleys to communal grazing lands in the cerros. The animals are used for plowing teams, for milk and cheese (which are often sold), and as wealth storage. Eventually, most cattle are transported to market for sale. Families also keep pigs, chickens, and small herds of sheep closer to the house, while the kitchen is usually occupied by a large number of *cuye* (guinea pigs). Home gardens are the main focus of this article, to which we now turn.

## Methods

Information on core Saraguro medical beliefs, health practices, and medicinal plant use originates principally from a series of structured questionnaires, unstructured interviews, and participant observation conducted in more than 350 indigenous households over a 25-year period, beginning in the late 1970s. In more recent research on home gardens and medicinal plant cultivation, we used four different data collection techniques, which were developed to triangulate results and enhance the reliability of findings relating to gardens and their role in family curing.

For the home gardens study, we first conducted semi-structured, open-ended interviews with nearly two dozen opportunistically selected Saraguro adults (16 women and six men). Subjects who did not keep their own home garden (two women who had not yet built gardens and all of the men) were questioned on the plot to which they had greatest access (usually, the garden of a spouse or mother). The interviews covered five broad topics: garden construction, plant selection,

sources for garden materials, cultivation techniques, and plant applications. Questions concerning assembly included the age of the subject's own home garden; the logistics of design, planning, fabrication, and maintenance; and factors influencing when, where, and how a garden is created. Probes on plant choice assessed household needs (i.e., intended uses), demand (i.e., desirability), cultivation limitations (e.g., hardiness), and access (e.g., seasonal change). Inquiry on material sources included settings and contacts for securing plants and the construction materials for gardens, resources expended to obtain stock, the process for adding and experimenting with new plants, and strategies for inter-household plant exchanges. Cultivation questions focused on special conditions for planting (e.g., soil, water, sunlight, spacing, fertilizer) and factors that might shape the humoral and curative potency of plants (e.g., plant age, cultivation practices, seasonal changes). Application probes explored plant function (e.g., food, medicine, ornamentation) and overall utility.

Next, nine subjects (identified here with pseudonyms) were asked to free-list the contents of their own home gardens. This exercise was intended to generate a baseline inventory of key garden cultigens and to identify the most salient plants among those subjects interviewed (Bernard 2002:282). The technique has proven useful for identifying patterns in the selection and use of medicinal plants in prior studies (see Quinlan et al. 2002; Trotter 1981). The task also gave us an opportunity to assess the accuracy of recall-only methods for studying medicinal plant cultivation and use. The precision of this strategy is somewhat compromised by the tendency of Saraguro subjects to occasionally use a mix of names to refer to the same plant, such as local use of both *fucsia* and *pena pena* in reference to the many varieties of fuchsia (*Fuchsia* L.). This tendency, although limited to just a few cultigens, nonetheless poses a risk for overstating the total number of plants in house gardens. This problem was largely—though probably not entirely—mitigated by Finerman's extensive fieldwork on medicinal plant use in the community, affording ready familiarity with alternative names used for most plants.

A surprising number of agricultural studies are limited to "doorway" interviews, where informants respond to a battery of questions about what they plant, how much land is devoted to each cultigen, how much yield is produced, and what it earns at market. However, we deem this approach to be unsuited to the study of home gardens and argue that interviews alone can seriously bias results. Interviews here revealed that gardeners may be unable to reliably list the full range of species that might be growing in their home gardens; many rare plants, and perhaps some plants too ubiquitous to be considered "interesting," will not be recalled.

Consequently, we followed up questionnaires and free-lists with a third research strategy: in-garden interviews, in the form of videotaped walk-throughs. One researcher toured a garden with its owner, indicating specific plants and asking their name(s), uses, and other relevant questions, and recorded notes while the other investigator videotaped the proceedings. This technique afforded a general sense of the relative abundance of different species and varieties, planting patterns, and overall garden organization. Most gardeners also found the walk-through more easily tolerated than conventional floristic sampling or individual plant mapping that, in early experiments, proved a greater invasion of the owner's domestic space. More critically, videotape yielded a permanent and virtually complete inventory of the garden and its contents at the time of study and segregated data on all plant

applications identified by each garden's owner. Taxonomy was later established by comparing videotape and still photographs of plants with published sources.<sup>1</sup> Although the collection of vouchers is preferable to ensure accuracy in plant classification, sampling was deemed impractical at the time of study because regulations restricted plant export and because local botanists were not available to assist with identification. Still, Finerman had collected vouchers during earlier research on herbal remedy use in the community and had established taxonomies for most (but not all) plants.

Finally, we measured and mapped out eight garden plots relative to the larger household compounds (the ninth subject completed all other exercises but declined permission to measure her property). Mapping permits analysis of the spatial configuration of gardens (see Kimber 1973). The maps were used to reveal relationships between the home garden and residence (i.e., garden size, proximity to the house, geographic orientation), to provide a baseline on the range of variation among home gardens, and to suggest patterns across individual households and between widely dispersed barrios.

### Home Garden Structure

Saraguro home gardens tend to be quite small; the largest we measured was just less than 1/10 ha. Most are between one-fourth and one-half that size, and a few run only a couple of meters on a side. Home gardens tend to be located only a few steps from the house, often just in front of the main entrance—many are literally door-yard gardens. However, site factors create considerable variation, and occasionally they expand to fill the entire houseplot. Nevertheless, the home garden usually forms a distinctive feature on the landscape.

On approach, the typical Saraguro home garden resembles a palisaded stockade in miniature. Almost invariably, garden plots are bounded by fences of timber slabs and/or corn stalks that are supported by posts and rails, although barbed wire fences are growing more common. Saraguro informants report that fences are primarily intended to keep out grazing animals, but during interviews all of our informants disclosed that they are also concerned about the envious gaze—and thieving hands—of neighbors. Thus, most expressed a preference for fencing materials that obscure visibility. Women also tend to train plants over the fences, to effectively block the view and access to garden contents. Over time, fences grow engulfed by hedges of agave, San Pedro cactus, and a maze of vines such as chili peppers and squash.

Saraguro home gardens are elaborate, bordering on the chaotic when they are mature. To the untrained eye, they present a jumble of fruiting trees, showy flowers, numerous vegetables, and herbs, surrounded and sometimes strangled in a tangle of weeds. But, this apparent clutter can be misleading: varieties are often planted in ordered mini-plots with careful attention to each plant's needs for water, sunlight, fertilizer, and air circulation. However, because a stand is often harvested over a period of time, and because each plant shares the garden with perennials and annuals gone to seed, what begin as discrete, ordered plots often evolve into a complex, multistoried, intensely intercropped mosaic of overlapping species distributions. This is further complicated by the fact that many volunteer "weeds" are tolerated for their use as medicine or animal fodder.

Unlike agricultural fields, home gardens are worked entirely by hand; they are usually too small to turn an ox team and plow. Labor patterns also differ: whereas field labor follows a definite seasonal rhythm of plant, weed, and harvest, home gardens demand more constant, day-to-day attention, and planting, weeding, and harvesting often occur simultaneously. However, because gardening tasks take place close to home, they can be seamlessly integrated with other household routines. Thus, garden labor is often less public and visible than is field agriculture.

### Home Gardens as Women's Domain

The Saraguro landscape is highly gendered. Although both men and women own land and animals, men manage most decisions concerning farming and cattle. By contrast, both households and home gardens are uniformly ascribed to the jurisdiction of women. Almost invariably, women plan their gardens, choose what to plant and when to harvest, control how garden products are exploited, and provide the bulk of the day-to-day maintenance. When men or children work in gardens, they do so at the behest of and under the direction of women. In fact, men generally disavow any knowledge of home gardening, deferring to their wives for even basic information about gardens and their products. We have seen several cases where neighbors solicited plants from a family's home garden and were asked by that family to wait, because the female head of household was not home. Of note, we have never seen visitors await a male head of household to secure home garden products. Apparently, a woman's kin rarely feel free to handle home garden exchanges, although they often negotiate other transactions.

In some respects, home gardens are the most "private" part of the household; even children are usually forbidden from playing in them. In some cases, large urine storage pots (used in fabric dyeing), considered noxious and toxic, are stowed in the home garden because it is thought to be a safe location to protect children from coming in contact with the vessel. Not surprisingly, it is considered a serious offense to be caught trespassing in another woman's garden.

Women know their gardens intimately and can precisely locate individual plants lost amid tangles of weeds. They can often recount the life histories of individual plants: where, when, and from whom the seeds and cuttings were borrowed. This knowledge base builds significantly with age and experience in tending gardens. And, despite concerted efforts to hide gardens behind fencing and dense plantings, women tend to be experts on their neighbors' gardens, and they know where to procure any plants they themselves do not cultivate. Plant borrowing here emerges as an important basis for interhousehold exchange. As one might expect, exchanges are most frequent and generous with adult daughters, sisters, *comadres* (godmothers to their children), and close friends, and are substantially less common with others. One Saraguro woman told us that "no one gives them [plants] away; you buy them at the agricultural center. But you might get a friend to let you take some seed or a cutting, or perhaps kin, like your mother, will let you take seeds or cuttings from her garden. But they cost a lot, so mostly you have to buy and then get new seed from your own plants." Another informant had started her garden with plants and cuttings obtained from her sister, and agreed that "you have to go around asking for people to give you the plants, or you buy, or you go to family." However, we have

occasionally seen blancos successfully beg for medicinal plants from indígena families. They invariably directed their request to the female head of household.

Having an abundant and rich garden is an important source of status for Saraguro women. Some develop reputations as skilled gardeners, and are continually sought out for cuttings and advice, and for produce exchanges. Informants frequently boast about their gardens and the relative independence their gardens afford, relative to families that must purchase produce and pharmaceuticals. Because women usually own garden products, the growing market demand (mainly for fruit) offers fresh opportunities to contribute to the household cash income, another avenue for status acquisition. A few other studies report similar relationships between women's authority and their knowledge of medicinal plant cultivation and use, especially in Latin American and Caribbean populations (Clark 1993; Kainer 1992; Quinlan 2004; Wayland 2001).

### Home Garden Applications: A Focus on Family Health

To a first approximation, Saraguro home gardens are medicine cabinets. Although gardens may yield social and economic benefits, and although most garden plants have multiple uses, a clear majority of products have a medicinal role, mostly for *nervios* (nerves), *aire*, (evil air), colds, colic, and reproductive health.<sup>2</sup> For example, Table 1 lists plants and applications for "Balbina's" garden.

Of the 194 species found in this moderately large (0.075 ha) but representative garden, fully 132 plants were utilized in herbal home remedies. Foods are also quite common, but many of these also have medicinal value. In this same garden, 48 plants were used as food, but half of the foods (24 of the 48) are also used in curing. Ornamentals are also cultivated in significant numbers. These are produced as part of a religious cargo system, to prepare elaborate floral altar displays for Sunday Mass and fiestas; for the most part they are not intended as ornament to a house, as in U.S. culture. And, as in the case of foods, many ornamentals also have medicinal uses. In this same garden, over half of the ornamentals (40 of the 73 plants and possibly also San Pedro cactus) are also used in home remedies. Finally, a small number of plants are cultivated for other applications, including use in crafts (e.g., burrs for carding wool; plants used for dyeing wool and weavings), or as animal fodder (e.g., grasses for guinea pigs; sheep tethered in gardens to graze on weeds; and yielding fertilizer benefits). Yet even here, three of the nine varieties in this garden have medicinal value.

As Table 2 illustrates, this pattern of mixed use with a predominance of medicinal function extends to all of the other gardens we have studied thus far. That is, all nine gardens yield products for food, ornament, and various utilitarian purposes, but medicinal objectives outnumber all others. Between 61 and 82 percent of the varieties in these home gardens—an average of nearly 70 percent—have medicinal applications.

Numbers represent number of plant varieties; percentages indicate proportion of varieties in each garden used for a given application, rounded to the nearest whole number. Note: because many plants have multiple applications, percentages for each garden may exceed 100 percent.

It is important to note here that our data on garden contents specify only those plant names and uses reported by their owners, to permit identification of

**Table 1**  
**"Balbina's" garden.**

Local Name	Botanical Name	Varieties	Medicinal	Ornamental	Food	Other
acacia	<i>Acacia</i> Mill. sp.	1		X		
acelga	<i>Beta vulgaris</i> L.1	1	X			X
achilche	<i>Werneria</i> Mill. sp	1	X			
achira	<i>Canna indica</i> L.	1				X
agave	<i>Agave americana</i> L.	1		X	X	
aguacate	<i>Persea</i> Mill sp.	1			X	
ajenjo	<i>Artemisia sodiroi</i> Hieron	1	X			
aji	<i>Capsicum</i> L. sp	1	X		X	
ajo	<i>Allium satifum</i> L.	1	X		X	
alberja	<i>Pisum sativum</i> L.	1				X
alfalfa	<i>Medicago sativa</i> L.	1			X	X
amor constante	<i>Impatiens</i> L. sp.	3	X	X		
ápico	<i>Apium graveolens</i> L.	1	X		X	
ataco sangurache	<i>Amaranthus caudatus</i> L.	1	X			
avas	<i>Phaseolus</i> L. sp.	1			X	
aya rosa	<i>Tagetes patula</i> L.	2		X		
azucena	<i>Lilium candidum</i> , sp.	4		X		
babaco	<i>Carica pentagona</i> Heilborn	1	X			
begonia	<i>Begonia</i> L.sp.	7	X	X		
borraja	<i>Borrago officinalis</i> L.	2	X			
brezo	<i>Erica capnea</i> L.					
calse	<i>Tradescantia</i> L. sp.	1	X			
campiche arbol	Unknown	1				
canyallullu	<i>Sonchus olerarceus</i> L.	2	X		X	X
capuli	<i>Prunus sertina</i> Ehrh.	1	X		X	
cararanga	Unknown	1		X		
cariamanga	<i>Canna jaegeriana</i> Urb.					
carne de perro	Unknown	1	X			
cartucho	Unknown	1		X		
cebolla	<i>Allium cepa</i> L.	1	X		X	
cena blanca	Unknown	1		X		
chinchimani	Unknown	1	X			
chine ninga	<i>Chuquiragua jussieui</i> Gmel	1	X			
chine de caballo	<i>Chuquiragua</i> sp.	1				X
chochos, cauri	Unknown	1			X	
cipres	<i>Cupressus lusitanica</i> Mill.	1		X		
clavel	<i>Dianthus</i> L. sp.	5	X	X		
col	<i>Brasica</i> L. sp.	1	X		X	
coliflor	<i>Brassica</i> L. sp.	1			X	
congona del						
cerro	<i>Peperomia</i> Ruiz and Pav, sp.	1	X			
congona	<i>Peperomia congona</i>	1	X			
consuelda	<i>Symphytum officinale</i> L.	1	X			

Table 1 (Cont'd.)  
 "Balbina's" garden.

Local Name	Botanical Name	Varieties	Medicinal	Ornamental	Food	Other
crisantemo	<i>Chrysanthemum</i> L. sp.	2		X		
culantro	<i>Coriandrum sativum</i> L.	1	X			X
dalia	<i>Dahlia</i> Cav. sp.	4		X		
durazno	<i>Prunus persica</i> L.	1	X			X
escancel	<i>Aerva sanguinolenta</i>	1	X			
espínaca	<i>Spinacia oleracea</i> L.	1				X
flesmor	Unknown	1	X			
flor de aleli	<i>Matthiola incana</i> L.	1	X			
flor de espíritu	<i>Epidendrum</i> L. sp.	1	X			
flor de puma	Unknown	1		X		
geraneo	<i>Geranium</i> L. sp.	6	X	X		
glooma	Unknown	1	X			
granadilla	<i>Passiflora</i> L. sp.	1				X
guanto	Unknown	1				X
guava	<i>Psidium</i> L. sp.	1				X
gulagh	<i>Rumex</i> L. sp.	2	X	X		
hierba buena	<i>Mentha piperita</i> L.	1	X			
hierba luisa	<i>Cymbopogon citratus</i> Stapf					
hierba de perro	Unknown	1	X			
higo	<i>Moraceae</i> sp.	1	X			X
higuerilla	<i>Ricinus communis</i> L.	1				X
huicunda	Unknown	1				X
kingrass	Unknown	1				X
lechuga	<i>Latuca sativa</i> L., sp.	1		X		X
lengua de vaca	<i>Rumex crispus</i> L.	1	X			
limón	<i>Citrus limonum</i> L.	1	X			X
lirio azul	<i>Iris</i> L. sp.	1		X		
llanten	<i>Plantago major</i> L.	1	X			
llullullulu	<i>Saccharum officinarum</i> L.	1	X			
maiz	<i>Poaceae</i> sp.	1	X			
malva	<i>Malvaceae</i> sp.	7	X			
malva alta	<i>Alcea rosea</i> L.	1	X			
malva olorosa	<i>Pelargonium odoratissimum</i>	1	X			
manzana	<i>Rosaceae</i> sp.	2				X
manzanilla	<i>Matricaria chamomila</i> L.	1	X			
marco	<i>Franseria artemisioides</i> Willd.	2	X			
margarita	<i>Bellis perennis</i> L.	1	X	X		
mighcho	Unknown	1	X			
mora	<i>Rubus</i> L. sp.	1	X			
mortino	<i>Solanum aloysiifolium</i> Dunal	1	X			

Table 1 (Cont'd.)  
 "Balbina's" garden.

Local Name	Botanical Name	Varieties	Medicinal	Ornamental	Food	Other
mostaza	<i>Brassica rapa</i> L.	1				X
nabo	<i>Brassicaceae</i> sp.	1		X		
naranja	<i>Citrus aurantium</i> L.	1	X			X
nogal	<i>Juglans neotropica</i> Diels	1	X	X		X
oregano	<i>Origanum</i> L.	1	X			X
ortiga	<i>Urtiga</i> L. sp.	1	X			
pacunga	<i>Peperomia peltigera</i> C.	1	X			
pacunga de coche	<i>Peperomia</i> Ruiz & Pav, sp.	1	X			
paico	<i>Chenopodium ambrosioides</i> L.	1	X			
pajarito	<i>Linaria</i> Mill. Sp.	2		X		
palia	<i>Chenopodium</i> L. sp.	1		X		
palitaria	<i>Parietaria debilis</i> Forst.	1	X			
palmillo	<i>Iridaceae</i> sp.	5		X		
papas	<i>Solanaceae</i> sp.	1	X			X
pempinella	<i>Sanguisorba officinalis</i> L.	1	X			
pena pena	<i>Fuchsia</i> L. sp.	8	X	X		
pera	<i>Rosaceae</i> sp.	1				X
perejil	<i>Petroselinum crispum</i> Hill	1	X			X
pepino	<i>Cucumis dipsaceus</i> Ehrenb.	1				X
pollaco	<i>Polymnia</i> sp.	1	X			
porotos	<i>Fabaceae Leguminosae</i>	1				X
poste clarita	Unknown	1		X		
quinoa	<i>Chenopodium quinoa</i> Willd.	1				X
rabano	<i>Raphanus sativus</i> L.	1	X			X
romero	<i>Rosmarinus officinalis</i> L.	1	X			
rosa	<i>Rosaceae</i> sp.	4	X	X		
rosa loca	<i>Lampranthus coccineus</i> Haw.	1	X			
ruda	<i>Ruta graveolens</i> L.	1	X			
sacha jícama	Unknown	1				X
sacha llullu	Unknown	1	X			
sambo	<i>Cucurbita ficifolia</i> Bouche	1				X
san pedro	<i>Trichoceros</i> Kunth	1	X			X
santa maría	<i>Chrysanthemum parthenium</i>	1	X			
sauce	<i>Salix Humboldtiana</i> Willd.	2	X			
sauco	<i>Cestrum auriculatum</i> L'Her.	4	X			
selve	Unknown	1		X		
shullo	<i>Oenothera</i> L. sp.	3	X			
solda	<i>Asteraceae</i> sp.	1	X			

Table 1 (Cont'd.)  
 "Balbina's" garden.

Local Name	Botanical Name	Varieties	Medicinal	Ornamental	Food	Other
taxo	<i>Passiflora</i> L. sp.	1	X			
tigresillo	Unknown	4	X			
tobacco	<i>Nicotiana</i> L. sp.	1		X		
tomate de arbol	<i>Cyphomandra betacea</i> Cav	1				X
toronch/siglolon	<i>Carica crassipetala</i> VM					
	Bad	1	X			
toronjil	<i>Melissa officinalis</i> L.	1	X			
turpi	Unknown	1	X			
uvilla	<i>Physalis peruviana</i> L.	1				X
violeta	<i>Viola</i> L. sp.	3	X	X		
zanaoria	<i>Caucus carota</i> L.	1	X			X
zapallo	<i>Cucurbita maxima</i> sp.	1				X
zhiran	<i>Bidens</i> L. sp.	1				X
<b>Total</b>		194	132	73	48	11

interhousehold variation in plant knowledge and applications. Although the vast majority of botanicals in Saraguro share consistent names and uses across households, there is some variation in awareness of medicinal value. Some cultigens said by one gardener to have no medicinal value were used in remedies by other informants. For example, some subjects listed *acelga* (*Beta vulgaris* L.), *alfalfa* (*Medicago sativa* L.), *margarita* (*Bellis perennis* L.), and *pajarito* (*Linaria* Mill. sp.) as nonmedicinal foods or ornamentals, whereas others claimed that these have curative value.

One elderly woman was the sole subject to identify five plants, labeled purely ornamental by others, as both decorative and medicinal. She claimed that one, *pajarito*, eliminates head lice, a second, *poma* (*Chrysanthemum* L. sp.), helps alleviate nerves, and three others, *aya rosa* (*Tagetes patula* L.), *azulito* (species not

Table 2  
 Plant varieties and uses in nine Saraguro home gardens.

Garden	Varieties	Medicine (%)	Ornament (%)	Food (%)	Other (%)
"Antonia"	84	59 (70%)	49 (58%)	15 (18%)	3 (4%)
"Balbina"	194	132 (68%)	73 (38%)	48 (25%)	11 (6%)
"Carmen"	57	35 (61%)	17 (30%)	18 (32%)	3 (5%)
"Dolores"	87	54 (62%)	55 (63%)	20 (23%)	3 (3%)
"Elena"	85	54 (66%)	29 (34%)	26 (31%)	5 (6%)
"Francisca"	102	77 (75%)	53 (52%)	15 (15%)	4 (4%)
"Gabriella"	100	61 (61%)	45 (45%)	28 (28%)	8 (8%)
"Hortencia"	82	64 (78%)	38 (46%)	17 (21%)	3 (4%)
"Incarnation"	68	56 (82%)	43 (63%)	14 (21%)	6 (9%)
<b>Average</b>	95.4	65.7 (68.8%)	44.6 (46.8%)	23.3 (23.4%)	5 (5.3%)

identified), and four varieties of *lirio* (*Iris* L. sp.), are part of a remedy for a rare supernatural illness known as *bao de agua* (a form of magical fright). When informed that no other women seemed aware of these applications, she replied that "Well, Miss, I'm old, and this is what they taught me in the old days by my family. These days, the girls don't learn such things." Her middle-aged neighbor, on hearing this, said she'd have to remember this information for her own family. Thus, it's likely that the number of potential medicinals in these gardens exceeds totals listed here. Plants can achieve curing value later on, because Saraguro women habitually solicit information about "new" remedies from friends and neighbors, and incorporate many of these previously unrecognized medicinal plant recommendations into their home-curing routine.

It also must be acknowledged that these findings are frequency-based in nature, reflecting the recorded presence-absence of total plant varieties in each garden rather than the prevalence of each plant. The number of species exploited as remedies does not, in itself, confirm the primary characterization of home gardens as "medicine cabinets." This is because the spatial distribution and total production of varieties differ quantitatively. In other words, some plants might be grown in greater numbers than are others, so the production of, say, a food like *tomate de arbol* (*Cyphomandra betacea* Cav.) might exceed the total yield of a medicinal such as *manzanilla* (*Matricaria chamomilla* L.). However, attempts to measure the relative importance of a specific plant are problematic, and crop yield may have little bearing on the matter. This is because comparatively large quantities of foods and ornamentals must be grown to be of use (e.g., one carrot contributes little to a family's diet). By contrast, very small amounts of a medicinal usually suffice for curing (e.g., most medicinal teas contain only a few flowers, seeds, leaves, stems, or bark from any one plant). Despite these caveats, our analysis of the spatial distribution of plants (based on videotaped walk-throughs) offers overwhelming support for the argument that medicinals also dominate home gardens in terms of total production.

Another point meriting attention is that Saraguro's medicinal plant stock is extensive. As many as 194 medicinal plants were recorded in a single garden, yet this garden lacked many common remedies mapped in the other households. A conservative estimate of the total Saraguro home garden plant repertoire is 250–300 distinctly named varieties and species. In addition, the Saraguro use a vast number of wild medicinal plants, which they harvest in higher and lower altitude ecosystems. Many informants, particularly older women, maintain a corpus of 400 to 500 medicinal plants. Women make extensive use of herbal remedies; virtually every meal includes an *orchata* or an herbal tea, and most dishes incorporate medicinals, all intended to prevent or treat constitutional imbalances and illnesses in the family (Finerman 1983, 1989a).

The predominance of medicinal plants in home gardens led us to an interesting negative finding. Saraguro ethnomedicine focuses on perceptions of a humoral opposition of hot and cold. Illness is caused by an excess of hot or cold in the body; medicines, including plant preparations, work by restoring the hot/cold balance of the bodies. For example, "hot" illnesses like stomach ache are treated with "cool" mint tea (see Finerman 1987, 1989b). This conceptual framework is fundamental to all Saraguro healing activities.

The pervasiveness of this belief in hot/cold opposition across Latin America led us to expect that gardening practices in Saraguro would be based at least partly on humoral concerns; indeed, one study has identified such hot/cold principles in the cultivation practices of the Tzeltal Maya (see Maffi 1999). We predicted that hot plants might only be planted near other hot plants, or possibly that the overall assemblage of plants in a garden are chosen to balance hot and cold humors. However, informants universally reported that humoral opposition is utterly irrelevant to planting practices; the hot or cold quality is so intrinsic to a plant that it is not modified by external influences. Rather, plants are planted with regard only to their requirements for water, sunlight, air, and mulch. Soil type, too, appears to be a secondary consideration. In interviews, several Saraguro informants described four soil types, which are based on their color and texture: black/clayey (*negro/arcilloso*), white/gravelly (*blanco/cascajo*), yellow/waxy (*amarillo/ceroso*), and red (*rojo*) soils, in approximate order of desirability. However, all informants agreed that a plant's characteristics, like humoral quality and medicinal potency, are unaffected by soil type. Most also claimed that practically any soil can be used for gardens if enough organic mulch (*abono*) is added.

Finally, although medicinal needs play a key and seemingly dominant role, many considerations spur variation and complexity in home garden production. A number of plants, including medicinals, food, ornamentals, and craft materials, also have value in economic exchanges, including the trade and market sale of products. This is especially true for fruits like *tomate de arbol* and *babaco* (*Carica pentagona* Heilborn) or *toronch* (*Carica crassipetala* V. M. Badillo). Many home gardens are notable for the eclectic nature of the crop assemblage, including both ancient Andean crops like *uvillas/capulí* (*Physalis peruviana* L.), *tomate de arbol*, and *babaco*, and more recent introductions such as lettuce, cabbage, cauliflower, apples, and peaches. Thus, although home gardens reflect continuities with tradition, gardeners are quite receptive to new cultigens and techniques.

## The Natural History of Home Gardens and Their Owners

In the process of mapping out home gardens, we found it useful to distinguish different stages of garden development, which correspond closely to the family life cycle. These stages seem to account for much of the variation in the size and form of gardens across households, and they illustrate how modifications of the home garden quite frequently mirror transformations within the family itself.

### *Newlyweds and the Pregarden Stage*

Saraguro families express a keen preference for neolocal residence, but recently wed couples usually lack the resources to buy land and built houses, thus nearly all lack a home garden of their own. Moreover, new couples may want for the supplemental labor necessary to built and care for a home garden while also establishing a house and agricultural fields. It's also likely that gardens are a lower priority for young couples, because they tend to experience fewer health problems themselves and may as yet have few if any children who might require health care. Consequently, they usually borrow medicinal plants from mothers and mothers-in-law, when these are needed. This reliance on the home gardens of parents and in-laws

frees young couples to focus on the basic tasks of house construction, establishing food production and starting families of their own. Thus, the absence of a home garden often signals restricted resources. Not surprisingly, home gardens are also less common in poorer Saraguro households.

### *Young Families and the Early Garden Stage*

As soon as a couple can afford to do so, they usually buy land, build a house, and gradually establish a home garden. Gardens become increasingly useful as families grow, because many medicinal plants here are used in maternal-child health. With the birth of offspring, home gardens become easier to maintain, because children's labor affords mothers greater freedom to tend plots. New gardens are generally modest in size, with attention to the possibilities for future expansion. They also tend to appear quite neat and ordered, often with discrete areas devoted to food crops, medicinals, and ornamentals, although a few trees and field crops may initially be included to expand the use of the gardens.

For several reasons, newer gardens are also likely to contain a relatively modest range of plants. The comparatively limited variety may be attributable to the often-constrained resources of younger families; they may not have funds to purchase a rich array of plants, and they may lack the broad social networks necessary to secure gifts of seeds or cuttings from friends and neighbors. Alternately, young families may face only a limited range of health concerns, thus they may not need to sacrifice garden space to cultivate remedies for the many different needs of a large, mature family. Of related consideration, younger women with fewer offspring possess substantially less curing experience and demonstrate far less knowledge about medicinal plants. Nearly all women struggled to recall the names of some purely ornamental plants. In three gardens, informants resorted to calling some plants "just decorative" ("*solamente un adorno*" or "*flor de adorno*"), but only the younger women had difficulty identifying medicinal plant names. For example, the young mother "Carmen" could not recall the names of two medicinals she had planted in her own garden, though she often used them in home remedies. Also of interest, most of the men interviewed could identify only about half of all garden plants; each called to their wives for counsel or advised us to ask their wives for the plant names. Consequently, it is possible that younger families cultivate only those limited varieties of plants that are familiar.

This early phase in a house garden is exemplified by Figure 1, in which "Antonia," a young mother, built a small garden (132 square meters) near her home. Its simple and highly refined organization and its relatively commonplace cultigens offer tangible evidence of a young and formative garden, maintained by an equally nascent family.

### *Mature Families and the Garden Expansion Stage*

As family size and land holdings swell, home gardens expand in both space and content. Garden growth is potentiated by the family's enlarged labor force, but it is this very increase in family size that precipitates new health needs, and thus new garden product demands. Established families are also in a better position to

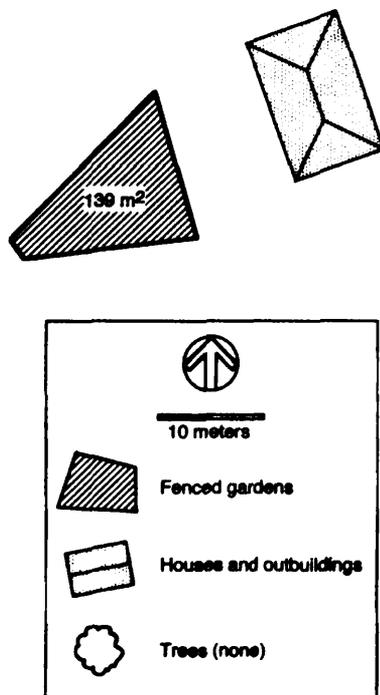
procure a rich variety of plants from family, friends, neighbors, and merchants, and older women exhibit a broader knowledge of medicinals.

Initially, new plots are fenced and planted, and the variety of plants increases, while established trees and perennials mature. In this way, gardens mimic growth in the family itself. Figure 2 shows a garden owned by "Balbina," a middle-aged woman with a spouse, eight teenage and young adult offspring, and numerous grandchildren living in or near their home. Balbina has enlarged her garden several times over the years and now grows almost two hundred plants in this compound to satisfy the family's many demands. Nonetheless, garden contents continue a focus on meeting the distinct health needs of children, youths, and adults in the household.

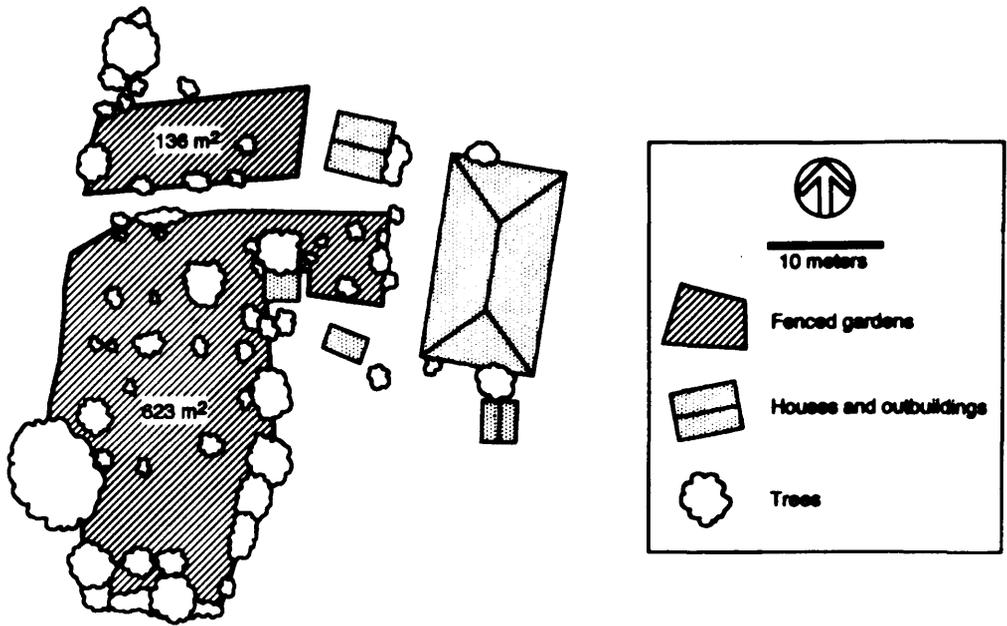
Ultimately, gardens may expand beyond the fenced plots as the entire compound becomes a continuous home garden surrounding the residence; as trees grow, the compound can take on the appearance of a rather untidy orchard with a dense, complicated understory of garden plants. Indeed, one highly elaborate set of gardens virtually encircles the home of one large and prosperous family in the sample group.

### *Aging Families and the Garden Decline Stage*

As children grow, marry, and leave, the available family labor force declines and health needs narrow. Once again, Saraguro home gardens seem to mimic family dynamics, as they, too, decrease in size and complexity. In some instances, large gardens are abandoned altogether. More often, the area under tillage is reduced in size, and/or plant range is restricted to those varieties still essential to the remaining



**Figure 1**  
**Example of the early garden stage: "Antonia's" home garden.**



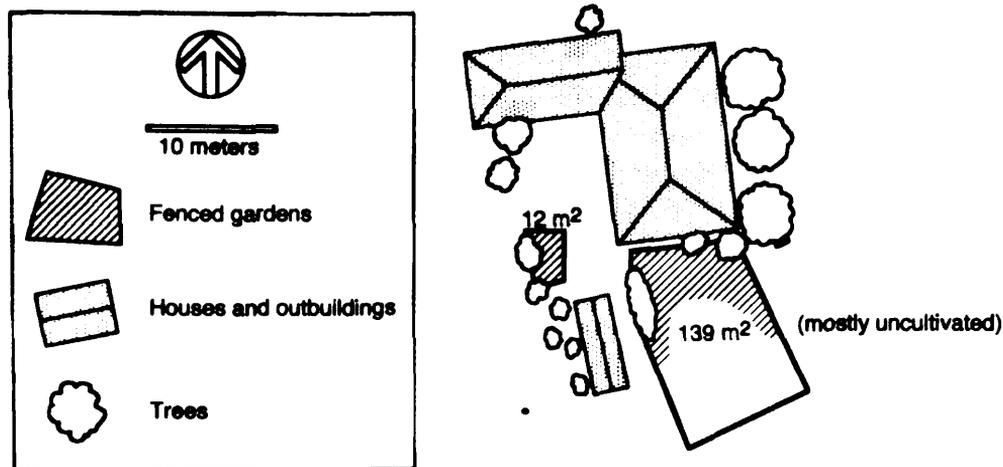
**Figure 2**  
**Example of the garden expansion stage: "Balbina's" home garden.**

family. Sometimes, tiny new gardens are created to improve physical access to the garden and to reduce labor demands on the caretaker. The types of medicinal plants cultivated in such gardens narrow to those specific to treating age-related conditions, like *aire*, *nervios*, and *rheumatism*. This stage is exemplified by Figure 3. "Carmen," an elderly woman, lives with her spouse; their adult children visit infrequently. Carmen's large home garden (139 square meters) lies virtually abandoned, with only small sections still under use, and a small garden (12 square meters) has been recently added nearer to the kitchen door. Plants cultivated in her small home garden are devoted almost entirely to the infirmities of the elderly.

### Home Gardens as Embodiment

We have seen informants come across discarded curing materials, scrutinize them, identify the plant combinations, and decipher their meaning. For example, we accompanied one subject when he spotted an herbal remedy bundle discarded in the high-elevation páramos. He picked it up, studied the assortment and concluded that it must have been used to *fregar*, or "cleanse" someone of *aire*. He was puzzled, though, as he felt that the plant combination was not particularly "strong" in terms of curative power. Eventually, he concluded that the bundle was probably used to treat a very young child, surmising that *tiernitos* (delicate infants) might be harmed by exposure to the more potent medicinal plants that are most commonly used in such cures.

Given this ability to analyze plants to unravel specifics about the user, illness, and patient, could such skills be applied to home gardens? Although we have found no studies citing the use of gardens to discover family health dynamics, Westmacott finds that African Americans in the rural U.S. South create gardens that "embody



**Figure 3**  
**Example of the garden decline stage: "Carmen's" home garden.**

the values and ideals of their owners," and that "gardens are usually in full view of passers-by, who will make their own judgments about the character and values of the owner" (1992:87). He concludes that any impressions gleaned from gardens are superficial, yet our own research offers guarded support for the predictive value of home gardens for achieving meaningful insights on family dynamics and health needs. Residents here routinely study their neighbors' huertas and many demonstrate a passion for using gardens and their contents as groundwork for conjecture about the owners' economic and health status.

In interviews, informants—often reluctantly—admitted that they do, in fact, study one another's gardens, to locate and trade for coveted plants and to decipher information on their owners. A few went so far as to mock the notion that the walls surrounding plots block the view of *curiosos*, or nosy neighbors, declaring that the contents of "secret" gardens are actually well known to everyone. Nearly all agreed that garden size and complexity can be used to infer a family's size and wealth, because more affluent couples with numerous offspring are in a better position to develop large, densely planted plots. Still, most informants pointed out that family dynamics are already well known to neighbors; as in most peasant communities, residents here have few secrets. Garden contents also betray the owner's participation in craft and market production, because large stands of certain plants (e.g., babaco and tomato de arbol) are valued primarily as cash crops.

Most critically, though, informants acknowledged that gardens might indeed be used to *adivinar*, or divine, the health problems of a family. They admit that it is particularly easy to discover that a household suffers frequent cases of colic, aire, magical fright (*susto*), menstrual pain, or nervios. This is because certain plants have no use beyond the treatment of these conditions, so their presence signals a higher prevalence of these ailments. As one young woman explained, "My aunt is a widow now, and you can see that from her garden: she has fewer plants now, because she doesn't have anyone to help her care for it, and because now she needs only remedies for herself. In the same manner, you can see if a family has more

problems with colds, evil air, menstruation, nerves or whatever by their garden.” Another woman specified that households with many young children “need remedies to treat more illnesses like colds, infections, and magical fright, as these are more common problems with small children. The old ones [elders] need plants for nerves, evil air, and rheumatism.”

Some ills are said to be so common that nearly all gardens contain plants to treat conditions. Even so, certain households cultivate more diverse and more potent ingredients that are combined in elaborate preparations; some remedies blend as many as forty ingredients. For instance, the range of plants grown to treat *aire* and *nervios* seem to be more varied and more powerful in the gardens of older women, most likely because the elderly suffer more frequent and severe episodes of these disorders.

Nevertheless, a number of informants stressed that, for several reasons, home gardens have only a limited predictive value. In part, this is because some medicinal plants like the kidney remedy *cola de caballo* (*Equisetum bogotense* Kunth) grow seasonally, thus their absence from a garden does not necessarily denote the lack of a health problem in the family. Similarly, families need not grow some medicinals if they can borrow or purchase the requisite ingredients. Most importantly, a wide range of medicinal plants is scavenged from the wild, both around the home and in other elevations. One informant deftly demonstrated this point by walking out to a public footpath where, in a matter of minutes, she collected four ingredients for a cold remedy that were growing wild along the trail: *borraja* (*Borago officinalis* L.), *mortiño* (*Solanum aloysiifolium* Dunal), *paico* (*Chenopodium ambrosioides* L.), and *verbena* (*Verbena* L. sp.). She pointed out six other wild plants growing nearby that she uses in home remedies, including *violeta blanca* and *violeta azul* (both *Viola* L. sp.) for coughs, *ataco sangurache* (*Amaranthus caudatus* L.) for menstruation, *cola de caballo* and *llantén* (*Plantago major* L.) for kidney disease, and *marco* (*Franseria artemisioides* Willd.) for evil air sickness. She did note, however, that several of these plants must be combined with others cultivated in home gardens if remedies are to be effective. So, although neighbors can guess at many of the illnesses within a household, the home gardens are an imperfect gauge of a family's comprehensive health needs.

Despite certain limits to their predictive strength, our informants nonetheless concur that home gardens do reveal something about family health needs. Perhaps more critically, gardens seem to offer another key insight: the extent of the owner's commitment to family well-being. Somewhat counterintuitively, a garden containing a wide array of medicinals does not reflect poorly on its owner or signal that she is an incompetent caregiver forced to grow numerous remedies for kin who are always ill. Instead, gardens bountiful in medicinals actually enhance a woman's status, testifying to her mastery of herbal medicine and her preparedness for coping with illness. The presence of a garden rich in such plants epitomizes her exertions on behalf of kin, and her proficiency as primary health provider; a spacious and productive garden filled with medicinal plants suggests that the family, too, is prosperous and fit.

## Conclusion

What can we, as researchers, decipher from home gardens? We argue that their size, complexity, and content offer useful clues to patterns in family, gender, and culture. Garden size and plant diversity hint at family size and composition, the family's stage in the life cycle, and their wealth or social connectedness. The presence of certain ornamental or utilitarian plants signals participation in religious cargos or in craft and cash crop production. Experimentation with undomesticated plants, with imports from different ecosystems, or with new market crops can distinguish a more conservative or a more progressive orientation to modernity. Indeed, the very presence of a garden boasts of autonomy and self-sufficiency because it reduces dependence on kin, neighbors, and markets (see Cleveland and Soleri 1987; Vogl et al. 2002). Westmacott (1992) argues that rural African American "vernacular gardens" similarly reveal a host of values and beliefs including self-reliance, privacy, fatalism, nostalgia, agrarianism, and resilience to change. He also offers recollections of medicinal plant cultivation, though the practice has waned: "Many of these home remedies have survived, though they are fast being forgotten" (1992:96–97). In Saraguro, home gardens continue to disclose select indicators of health status, illness patterns, and priorities and, above all, a woman's investment in and commitment to family well-being.

Why do Saraguro families—and women in particular—continue to build and maintain home gardens? After all, the land, labor, time, and financial expense required to establish and sustain such gardens might be better devoted to other activities. Saraguro informants recognize that lands are most prized for crop production or pasturage, that labor and time are best devoted to economic or domestic activities, and that scarce funds expended on flower seeds could be better spent on the demands of field and family. Without question, home gardens contribute to family diet, particularly in the form of micronutrients, yet such benefits are relatively minor and might be more easily met by field production. Ornamentals for church display can be procured from neighbors for less investment than that incurred by home gardening. Similarly, medications and even many herbal preparations are readily accessible in the town's many *boticas* (combined pharmaceutical and herbal shops), and these could readily substitute for home-grown medicinal plants. Why, then, keep a home garden?

We are convinced that Saraguro home gardens make a contribution far greater than that to diet, ritual life and remedy; the gardens are themselves a manifest representation of the community's most deeply held values: autonomy, status, religious piety, and personal investment in family. Women, in particular, benefit from this highly rational optimization of the costs and benefits of home gardens (Finerman 1989a). A garden demonstrates a woman's freedom from dependence on products from neighbors and commercial vendors; her fiscal standing evidenced by her ability to expend valuable land on a garden; her faith displayed by a sacrifice of resources to adorn the church; and her industriousness and devotion to family exhibited by her investment in plant cultivation. Thus, not surprisingly, young Saraguro women who have yet to establish a garden often speak of this in apologetic terms and list the creation of a garden as a key goal.

We consider home gardens interesting and worthy of study, and deserving of more ethnographic attention than they have received in the past. Although the relative merits of our triangulated methods for studying gardens are detailed elsewhere (Sackett and Finerman 2003), garden research demands a mixed strategy for data collection. Doorway interviews do not adequately capture the physical presence of a garden in relation to the larger household compound and family life-cycle dynamics. Freelisting fails to identify the full corpus of cultigens and, in our case, served mainly to demonstrate that younger women lack the depth of knowledge (including names for plants in their own gardens) that older and more experienced women enjoy. Video-taping cannot readily discover historic and seasonal shifts in garden structure, contents, and cultivation methods. Likewise, mapping fails to contextualize gardens in terms of the conceptual and behavioral foundations for their creation, maintenance and use. Most critically, triangulated methods for studying gardens must emerge from a firm ethnographic foundation if we are to understand how gardens are perceived and integrated into the daily life of owners, their families, and the larger community.

We can already state with confidence that home gardens are a manifest expression of a Saraguro woman's identity and a source of her pride and prestige in her family, her community, and her culture. A larger sample would permit us to offer more robust findings on the relative frequencies of medicinal plants (i.e., which are most often cultivated) and to more systematically compare medicinal plant cultivation by health needs and family life cycle (i.e., do aging families consistently cultivate more medicinal plants for treating age-related conditions like rheumatism?). Sadly, new and emerging forces threaten the integrity of Saraguro home gardens, making their study—and the preservation of the knowledge and biodiversity they represent—an urgent priority. The most powerful of these forces stem from the effects of international debt restructuring, the demographic transition, and market globalization.

One daunting threat to the persistence of home gardens emerged with Ecuador's recent global debt crisis. Such macrolevel forces had minimal local impact in the past, as indigenous Saraguro maintained a fairly autonomous and self-sustaining production system. However, as markets for cattle and produce expanded in recent decades, residents grew increasingly linked to the global economy. Dependency wrought financial devastation, as Ecuador's economy collapsed in the late 1990s. Since that time, the Saraguro, like most of their fellow citizens, have suffered catastrophic losses, property foreclosure, and mass migration. Today, an increasing number of home gardens lie abandoned by absentee landowners, or plowed under to make way for cash crops that have done little, thus far, to ease the financial burdens of their owners.

Another important threat to gardens is the increasingly crowded residential conditions in some Saraguro barrios, especially those closest to the town center. Improved child survival has spurred rapid population growth in most communities. With both bilateral inheritance patterns and neolocal residential preferences, lands are becoming increasingly fragmented. Because average house size remains the same (or is actually increasing despite the debt), lands available for home gardens are growing scarce. In these neighborhoods, gardens may be reduced to small vestigial patches, only a few meters on a side, greatly diminished in both richness and productivity.

A related factor is the expanding market demand for fruit crops, motivating many women to convert significant proportions of their gardens to the production of perennial cash crops like tomate de arbol, babaco, and common tomatoes. Because these are most profitably grown in single-species stands that are often protected under plastic-covered greenhouses, the amount of land available for diverse, lush home gardens shrinks still further.

We recognize that the recent expansion of market cropping brings Saraguro women some desperately needed ready cash and potential economic benefits long unavailable to them. At the same time, we fear that the loss of medicinal plants, reduced dietary breadth, and especially the erosion of household autonomy and control over family health will be a heavy price to pay. Forfeitures in terms of ethnomedical knowledge, women's status, ethnic identity, cultural heritage, and biodiversity may well prove vast, irreversible, and tragic.

## NOTES

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1. Scientific names for plants were derived primarily from the following sources: Peter Jorgensen, *Catalogue of the Vascular Plants of Ecuador* (St. Louis: Missouri Botanical Garden Press, 1999); National Research Council, *Lost Crops of the Incas: Little-Known Plants of the Andes with Promise for Worldwide Cultivation* (Washington, DC: National Academy Press, 1989); and Alan White, *Hierbas del Ecuador* (Quito: Ediciones Libri Mundi, 1985).

2. A complete listing of all nine home gardens, their plant contents, and applications was deemed too extensive to reproduce in this publication, however we would be pleased to furnish copies of these data on written request.

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