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Local Botanical Knowledge and Agrobiodiversity: Homegardens at Rural and Periurban Contexts in Argentina

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1. Introduction

1.1 Ethnobotany and horticulture

Homegardens are defined as those cultivated spaces, generally of reduced extensión, located in the surroundings of the house. Garden produce is mainly consumed at home, or given away to related families, but exceptionally devoted to commercialization as a supplementary resource of domestic economy (Buet *et al*., 2010; Pochettino, 2010, Wagner, 2002). Homegardens study constitutes a subject of increasing interest in Ethnobotany, as this approach contributes to both agrobiodiversity conservation (in particular to the infraspecific level) and to the preservation of cultural diversity: management strategies as well as species and varieties selection are not market-oriented, but they are regulated by preferences and culinary uses, linked with family traditions. So, these homegardens could be considered as real adaptative responses of local human groups arising from their own experience in the environment. This subject has been approached by diverse authors all over the world (Albuquerque *et al*., 2005; Blanckaert *et al*., 2004; Das & Das, 2005; Lamont *et al*., 1999; Nazarea, 1998; Vogl *et al*., 2002; Vogl *et al*., 2004; Vogl-Lukasser *et al*., 2002; Wagner, 2002; Watson & Eyzaguirre, 2002) even in Argentina, many of them developed by the research team of Laboratorio de Etnobotánica y Botánica Aplicada (LEBA), Facultad de Ciencias Naturales y Museo, Universidad Nacional de La Plata, Argentina (Buet *et al*., 2010; Del Río *et al*., 2007; Lema, 2006; Maidana *et al*., 2005; Martínez *et al*., 2003; Pérez *et al*., 2008; Pochettino *et al*., 2006; Pochettino, 2010; Turco *et al*., 2006).

The context for the study of horticultural practices performed in homegardens is centered on the botanical knowledge that guides those practices. *Botanical knowledge* (BK) is a set of knowledge and beliefs about plant environment, that conditions the strategies of plant selection and handling, specifying wich plant should be considered as a resource, and how it should be managed. BK shows different features according with cultural and ecological conditions. In many areas, horticultural practices derive from a local BK characteristic of culturally contexts generally viewed as homogeneous, mainly because a long experience of

human group in its environment, where knowledge is transmitted from generation to generation orally and in the shared practices. This BK has been named *traditional* (TBK) and there has been a rise in the number of studies about TBK because they are usually endangered and their rescue is urgent (Balick & Cox, 1996; Castellano, 2000; Gadgil *et al*., 1993; Maffi, 2001; Pochettino & Lema, 2008). In periurban zones surrounding large urban areas (conurbations) —and that are a sort of dynamic ecotone between these and rural areas, (Barsky, 2010)— local BK influencing horticulture does not constitute a TBK in the sense defined above, because periurban areas are immerse in an heterogeneous cultural context, with human groups without a long experience in the environment (in comparative terms), and where knowledge is transmitted through social means of communication besides oral ones.

The ethnobotanical research on homegardens carried out by our team, have been adressed to two cases that are representative of both contexts described above. The first one is a rural context (culturally homogeneus) in Northwestern Argentina, where horticulture is practiced since 2000 years ago and strong local traditions can be traced. The second one is a periurban context (culturally heterogeneus) in Buenos Aires province, where settlements are no older than 130 years and the relationships human beings-environment are the result of the combination of factors of diverse origin, linked to traditions or non traditional influences. In both cases, the most evident difference is temporal depth in the relationship human beings-plant environment. Nevertheless, other parameters have also been analyzed in order to characterize local BK: both sociocultural and environmental contexts. For the purposes of analysi swere considered homegardens features, cultivated species and varieties, their origin, management practices and selection criteria applied to them and related to local BK and values.

1.2 Study areas

1.2.1 Northwest of Argentina

The Northwest of Argentina (NOA) (Fig. 1) outstands because of a notorious biodiversity all along its extensive geography, and because of an equally rich cultural diversity as the result of a social development deeply rooted in ancient times. Consequently this is one of the areas of Argentina that shows the greater biocultural diversity. Landscape is characterized by mountain chains connected by deep fluvial valleys. As a result, a network of pathways linking different ecological zones —from eastern lowlands to dry uplands— was established since the first settlements in the area 10.000 years ago in order to allow exchange and complementary use of such diverse environments (Nielsen, 1996; Rodríguez & Aschero, 2007; Tarragó, 1980). Between 3000 BP and 1000 AD local processes of camelids domestication and large-scale environmental modifications took place, related with the establishment of the first farmer´s villages, in which the control of production was handled by domestic units in all altitudinal zones (lowlands, valleys and high plateau or *Puna*) (Albeck, 2003/2005; Berberián & Nielsen, 1988; Lema, 2009; Quesada, 2006; Yacobaccio, 2007). In the *Puna* it has been stated that the beginnings of plant domestication and the generation of productive spaces did not imply the loss of those practices linked to gathering of wild plants, as well as the tolerance of those species and other weeds in the areas devoted to gardening, thus generating wild-weedy-crop complexes (Lema 2009). In the course of cultural development of NOA, productive zones were increased and enlarged, and a

technology and architecture typical of the area were developed, characterized by the use of *pircas* (stone fences of prehispanic origin) to delimit irrigation channels, cultivation fields and terraces in mountain slopes (Berberian & Nielsen 1988, Nielsen 1996). Local cultivation modes, adapted to environmental particularities of the different ecological zones, were developed, for instance cultivation fields with high walls in the *Puna*, where they acted as heat regulators in a zone with low temperatures and marked daily thermal amplitude (Albeck, 2003/2005; Albeck *et al.*, 2008). This productive development was accompanied by changes in production management, which fell into local communitarian control between 1000 and 1470 AD to be then enclosed in the sphere of Inka control between 1471 and 1536 (Capparelli *et al*., 2011).

After European Conquest indigenous spaces were disrupted, and the forced establishment of a new regime of exploitation and production resulted in drastical changes, as the introduction of exotic cattle and new crops like wheat, barley and peaches (Capparelli *et al*., 2005), along with the changes in the management of productive areas and their space configuration (Boixados, 2002; Tarragó, 2000). At present, the area is inhabited by creoles and natives that are descendents of different etnias. They possess a regime of land exploitation of rural kind at low scale. In spite of those processes of intense change and colonization in the area, it is remarkable that diverse models of exploitations and transformations of the environment, oriented by TBK within local communities, still co-exist nowadays, in the NOA.

Field works have been performed in 4 peasant communities in the NOA: El Shincal, in the Valley of Hualfin, Catamarca province; Rachaite and Coranzulí, in the *Puna* of Jujuy province, and Santa Victoria Oeste in Salta province, in the upper basin of Bermejo river. Peasant community of El Shincal is settled 7 km far away from the small villaje of Londres de Quimivil in the Department of Belén, Catamarca. From the geographical point of view it is located in the Pipanaco basin and belongs to the *Monte* phytogeographical province, which is characterized by a dry shruby vegetation, being its warm climate, dry continental and subtropical (Capparelli *et al*., 2004). Argentine *Puna* constitutes a high plain that comprises part of Jujuy, Salta and Catamarca provinces, being accessed from eastern longitudinal valleys by three main ravines: Humahuaca, del Toro and the northern sector of Calchaquíes Valleys (Merlino & Rabey, 1978). In general, *Puna* is characterized as an herbaceous-shruby stepe with meadows or *ciénagos* with permanent water in the lower areas (Cabrera, 1976). Coranzuli and Rachaite are two small communities of Jujuy province located in high ravines of the Guayatayoc basin at *ca.*3800 meters over the sea level. Santa Victoria Oeste is the capital of the Department of Santa Victoria, in the northern extreme of Salta province. This district is bounded by Bolivia to the north, by Orán and Iruya departments to the south and east and by Jujuy province to the west. Santa Victoria Oeste is settled, at 2500 m over the sea level, in a valley with high grazing lands belonging to the phytogeographical province of *Yungas* (Cabrera, 1976), *ca.* 2500-4000 m over sea leavel. Over this ecological floor it is the typical vegetation of high Andean mountains, and below it, cloud forests and woods typical of *Yungas*. Ecological features of the fertile valleys where high grazing lands are found, conditioned not only human settlements but also the development of a diverse horticultural activity (Hilgert & Gil, 2008; Hurrell, 1990, 1991; Hurrell & de la Sota, 1996).

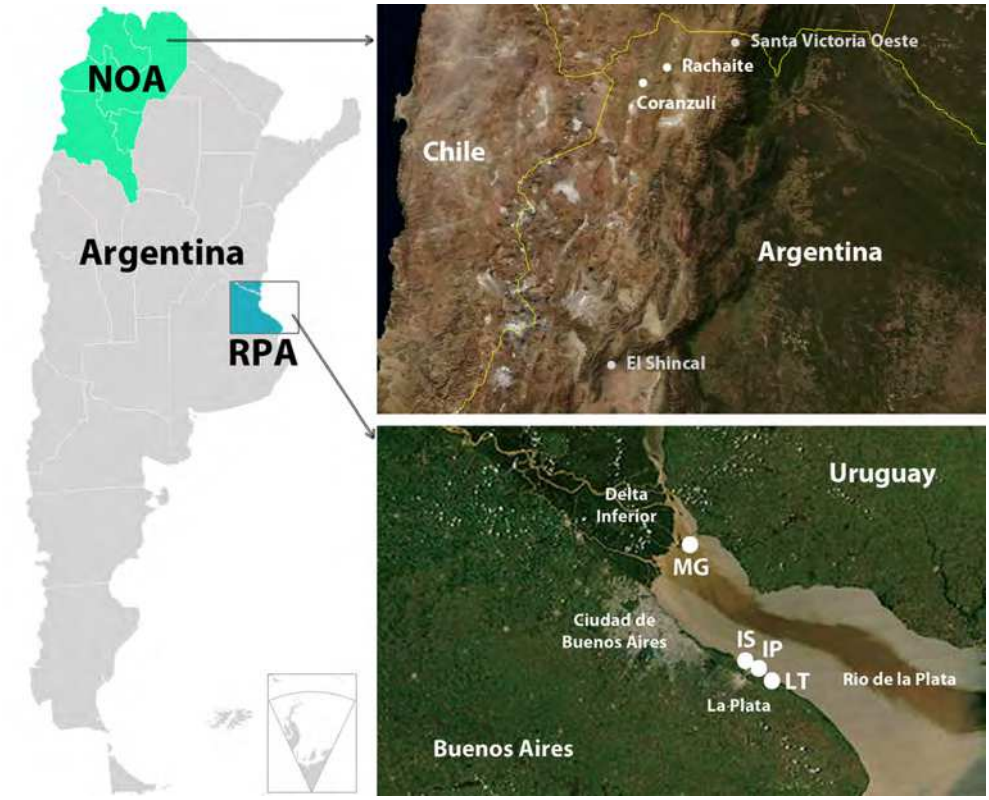

Fig. 1. Study areas: NOA, Northwest of Argentina area; RPA, Río de la Plata area. Sampling locations in both areas on satellite image of NASA. MG: Isla Martín García; IS: isla Santiago; IP: Isla Paulino; LT: Los Talas

1.2.2 Río de la Plata area

Several homegardens are located in the coastal area of the northeast of Buenos Aires province, called Río de la Plata area (RPA) (Fig. 1). Four sampling locations were selected: Isla Santiago, in Ensenada district, Isla Paulino and Los Talas, in Berisso district, all in the south of RPA, and the Isla Martín García, located in the upper part of the Rio de la Plata. Martin García homegardens are recents. Those of Ensenada and Berisso are linked by long standing common traditions to the local context.

Present districts of Ensenada, Berisso and La Plata originated at the ends of XIXth century, as a result of the siting in 1882 of the new capital of Buenos Aires province: La Plata city. Ensenada originated as a port, being founded in 1801; on the other hand, the origin of Berisso is industrial with the settlement of leather salting houses in the decade of 1870. These last two districts were separated by the channel of access to the port of La Plata, constructed in 1883. This channel divided in two parts an ancient single island: in Ensenada district remains Isla Santiago, and Isla Paulino in Berisso district. Furthermor, in the last years of that century, an intense immigratory flow from diverse European countries –

specially from Italy, Spain, Portugal and Poland— settled in the area. Those immigrants worked in the building of La Plata city and its port and they settled in fiscal coastal lands given with the condition of developing fruticultural and horticultural tasks; there, immigrants put their own origin traditions (García, 2010; Michellod, 2000; Sanucci, 1972). So, the production of *vino de la costa* ('wine of the coast') was started, by the introduction of American grape, *Vitis labrusca* L., with vine arbor system adapted to local conditions (Marasas & Velarde, 2000). In the first half of XXth century, industrial development of RPA (meat processing plants, textile factories, petrochemistry, shipyard), as well as the continuous floodings of River of la Plata, made that many inhabitants moved to neighboring urban areas – in expansion along with industrialization- because those areas offered new job opportunities. As a consequence, they abandoned horticultural practices (García, 2010). The depopulation process was notorious in certain places, like Isla Paulino: during its splendor time, more than 70 families lived there, while only 7 families live today permanently in the island (Buet *et al*., 2010). The initial expansion of cultivated lands caused the retraction of original vegetation composed by woods and hygrophile shrub (Cabrera, 1949). After the abandonment, native species colonized old cultivated zones, areas where also exotic species lasted or even entered and became naturalized. Changes in vegetal physiognomy, with pulses of retraction and expansion, in correlation with the rhythm of space use (cultivation, urbanization) were (and are) common in the periurban context of the RPA (Hurrell, 2008). Wine producing in particular showed an important deterioration since the second half of XXth century, in contrast with its former expansion. Nevertheless, in the last years a reactivation of wine industry is taking place, as a result of the constitution of cooperatives in Berisso district (Marasas & Velarde, 2000; Velarde *et al*., 2008). Those initiatives recover the activity and, simultaneously, recover those traditions that are expressive of their own origin.

In Isla Martín García, like Ensenada and Berisso, the urban areas and the spontaneous vegetation suffered expanding and contracting pulses, one respect to each other. Since 1973, with the signing of the treaty of Río de la Plata between Uruguay and Argentina, this island became a natural reserve, as well as an historic site (Llambí, 1973). As it is a strategic geopolitical point, the island was under military control up to 1985, when it was transferred to the administration of Buenos Aires province as the Argentine Army retired once and for all. In its borders, in addition to scrubland, shrub and hygrophilous woods, a marginal forest similar to the *Paraná Delta* is present, with major floristic complexity than the forest found in its austral border, Punta Lara, in Ensenada district. Unlike Berisso and Ensenada, horticulture is not a typical practice of this island, where the main economical activity is tourism. Thus, homegardens are small parcels that have been settled in the last 35 years.

2. Materials and methods

This research is framed in the scope of Ethnobotany, conceived in its broadest sense as the study of the relationships between humans and their vegetal surroundings (Hurrell, 1987; Albuquerque & Hurrell, 2010). Data here presented have been obtained in successive field trips to both areas here considered, since 2001 up to date, and they are also based in observations performed in previous studies carried out in LEBA, as a part of other research projects. In the case of NOA homegardens, 44 domestic units (DU) have been visited, while in RPA, 16 DU have been studied. The total of interviewed informants reaches 44 in NOA and 25 in RPA including individuals of different gender and age, all of them involved in

horticultural activity and in the elaboration of derived products, ways of consumption and eventual commercialization.

Ethnobotanical data were obtained according to usual qualitative methods (Albuquerque & Lucena, 2004; Alexíades & Sheldon, 1996; Martin, 2004) designed according to specific criteria for homegardens study (Albuquerque *et al*., 2005; Das & Das, 2005; Vogl *et al*., 2004). Open and semi-structured interviews to adult individuals of both gender involved in horticultural activites have been performed, as well as free listing to record the inventory of cultivated *ethnospecies* (that is, locally recognized discontinuities in plant kingdom) and varieties, life histories in the case of old people in NOA, and systematic and participant observations in different spaces in which daily life activities are developed (Pochettino, 2010). When it was possible, ethnobotanical treks were made accompanying local people during their daily activities (King, 2000; Martínez & Pochettino, 1999).

The collected information refers to ethnospecies and varieties that are present in homegardens, as well as to their reproductive material, locally recognized characteristics, production and management techniques, involved social actors, and the ascribed value and updated knowledge. In all the cases voucher specimens and other samples of involved plant species have been collected. They have been botanically identified and deposited as a document in the LEBA collections.

3. Results

3.1 NOA homegardens

The recorded ethnospecies and varieties in the homegardens of the four settlements are presented in Table 1. Local and scientific names are given, as well as the location where they have been found and the uses given by the population. The total of ethnospecies is of 41 plants, belonging to 16 botanical families. The family represented by the largest number of ethnotaxa is Cucurbitaceae: 8 (19.52%), then Solanaceae family is ranked: 6 (14.63%); Leguminosae and Chenopodiaceae are in the next place, each represented by 4 ethnotaxa (9.76%) and then Poaceae and Lamiaceae: 3 (7.32%). These families comprise 82.30% of the registered plants and they represent fundamentally the species used in food as vegetables. In the homegardens of El Shincal and Rachaite-Coranzulí the greatest diversity has been found (20 cultivated ethnospecies in each of the zones) while in Santa Victoria Oeste, only 10 ethnospecies have been recorded.

The term *homegarden* has been seldom used in NOA ethnographic studies (García *et al*., 2002; Ottonello & Ruthsatz, 1986); and it is much more frequent the use of the local term *rastrojo* that generally designates small plots for the cultivation of food plants, while the term *potrero* is given to pasture fields (García *et al*., 2002; Goebel, 1998; Martínez & Pochettino, 2004; Merlino & Rabey, 1978). However, the authors consider it is apropriate to give the name of *homegardens* to the small productive spaces of DU, as this category includes aspects that have not been treated in NOA studies in general, and those of *Puna* in particular, being considered an area of low biodiversity (Muscio, 1999).

In El Shincal 19 homegardens have been analyzed. Most of its inhabitants possess homegardens to self-consumption, and in several cases, *fincas* that are larger productive spaces devoted to commercial cultures, mainly walnut, but also vegetables as lettuce,

condiments (cumin, anise) and pulses, for instance common bean (*Phaseolus vulgaris* L.). With regard to this species, it has to be mentioned its importance in Andean agricultural tradition as a stapple food. Though this use is still locally current, people do not plant them in homegardens, and only use those devoted to market to culture common beans, consequently generating a high homogeneity in genetic material (Lema, 2009). So, homegarden, *rastrojo* and *finca* are the categories applied by local inhabitants to name productive spaces of different magnitude, the second of them referring to cultivation areas linked to succession in the use of productive spaces. Certain DU also have *puestos* — productive spaces and second house in higher zones– because of climatic requirements of microthermal cultures and cattle pasture cycles, where homegardens are very unusual, that instead are present in the house of the valley. Each DU possesses only one homegarden, of an average size of 2m x 8m, delimited with perishable elements like shrub branches or canes. Water availability is very scarce, so the water for the cultures is provided by rain or by hand irrigation. On the contrary, the *finca* has irrigation channels, and occasionally a derivation can be made, if the homegarden is located nearby. In the homegarden food plants consumed by the members of DU (on-farm), in addition to ornamental and medicinal ones, and the criteria to plant them are exclusively familiar, for instance culinary preferences, sometimes related with communal festivities (as the case of the cultivation of white corn, a cultivar of *Zea mays* employ for the confection of *humita* — a tradicional Andean meal prepared with grated corn— during Holy Week) or family horticultural practices, as is the case of transplanting wild chile, *quitucho* (*Capsicum chacoënse* Hunz.) from the *monte* (surrounding wild vegetation) to the homegarden. This is an outstanding difference with *finca* and even with *rastrojo*, where management criteria are imposed by those who will buy the production, either other individual of the community with who exchange is made, or local market. Taking into account personal characteristics of interviewed people, differences were observed as regard of attitudes on horticulture. On the one hand, according to gender of social actors, they perform different activities: while sowing and harvest are mainly achieved by men (particularly in *finca* and *rastrojo*), women are in charge of post-harvest processing to be used in meals preparation. This fact, along with women being responsible of homegarden maintenance, results in that decisions are taken by women, who project the management of domestic residential sphere to the domestic productive one, represented by homegarden. On the other hand, an important tool was the record of life histories; this strategy allowed the authors to know, for instance, the particular devotion of one male inhabitant to experiment and register the dynamics of his cultures, much more precisely than other gardeners in El Shincal. As a result of his practices, he restored a neglected species, *poroto de manteca (Phaseolus lunatus* L.) and a new one, pear (*Pyrus communis* L.) in his homegarden, that was soon spread among the population because he gave seeds or cuttings to his neighbors. This example shows the crucial influence that some individuals can have in relation with the increase of diversity in the whole community, moved by their own motivations and not by the assignation of social roles. Besides, it is notorious that the space in homegardens, is the best place to carry out this experimental trials.

In Rachaite and Coranzulí, homegardens, that are called *rastrojos*, are located at higher altitude than the previous. As in El Shincal, they are exclusive for each DU and they are placed by the house. The products also are devoted to self-consumption, the informal exchange with other families, and to a lesser extent with members of nearby communities.

Each DU is the unity of ownership, production and consumption, and is constituted by a nuclear or extended family, makes its own decision on the homegarden management, without external influences. This means that there is no a communal controlling authority over these spaces, as it has been mentioned previously for other cases in Andean scope (Mayer, 2004) or elsewhere (Martínez *et al*., 2003). In both communities several DU also have cultivation areas for household consumption, or exchange with neighbors, in the slopes of the mountains. They are placed in ravines with natural sources of water and protected from wind. In Rachaite, cultivation areas are bigger than in Coranzulí and they are constituted by large terraces. From the study of 15 homegardens, 3 different kinds can be distinguished:

Homegardens at the same level and in the open are plots of variable size, never larger than 10 m^2, where plants are sowed in defined sectors. Irrigation is made by hand or by means of a pipe from a near sink. Sometimes, they are partially delimited by walls made of adobe bricks or adobe and stone (*tapia*) which is topped with mud mixed with branches of *tola (Parastrephia lepidophylla* (Wedd.) Cabrera), to avoid the erosion caused by strong winds. The rest of the plot can be delitimited and protected from animals by a wire fence. In other cases, homegardens are completely surrounded by walls that act as thermal regulators. In this kind of gardens it is frequent to fin native wild plants, besides *tola,* like *cortadera* (*Cortaderia* spp.), *coba (Parastrephia quadrangularis* (Meyen) Cabrera) and *añagua* (*Adesmia horrida* Gillies *ex* Hook. & Arn.), that are tolerated while the space they are covering is not necessary. Those native plants are sometimes used as forage, so cattle are let get into the homegarden.

The *homegardens in greenhouse* have been established since the decade of 1980, mainly because of the influence of different government organisms that irregularly contributed with seeds (generally of exotic comercial species), plastic sheets and wood necessary build up the greenhouses. In them, there is greater specific diversity than in homegardens in the open. They are *ca.* 4 m x 3 m, the walls are made of adobe and the roof of wood braces and transparent nylon. Dejections of sheeps, goats or llamas are used as fertilizer. Inside them, temperature is very high because of strong sun radiation typical of *Puna*, consequently a sort of windows are made to eliminate excessive heat in summer, or even nylon roof is replaced by metallic screen that let air the greenhouse while prevent the access of birds. Thus, greenhouse changes to a homegarden in the open and also summer association of plants changes regarding the winter one, as microenvironmental conditions are different.

The *homegardens in slopes and in the open* are constituted by small cultivation terraces delimited by a peripheral *pirca*, sometimes along with a wire fence. Each portion of terrace, where a single food plant or an association of different plants can be foun, is named *patía* and it is the unit of culture rotation. There are irrigation channels made of earth that takes the water from the nearby river. Native plants as *tola* and *cortadera* also grow naturally in the terraces, which are not eliminated unless the space they are covering is necessary. In order to protect cultures from frost, some gardeners cover a potato plant (considered the *mother of potatoes*) with a reversed vessel, because they consider that by protecting an outstanding specimen, they are protecting all the other plants of the garden.

Both in Rachaite as in Coranzulí there are homegardens at the same level and in the open, and greenhouses. Homegardens in slopes an in the open are found exclusively in Rachaite. Cultivated species are mentioned in table 1. It is noteworthy that the three kinds of homegardens here described are different from large scale production areas with

commercial purpose in diverse aspects: the greater diversity of species, the presence of plants for diverse purposes (food, medicine, forage), specimens belonging to different sowing cycles, and plants with different degree of association with human beings. Though Coranzulí is a more concentrated village than Rachaite, that has a spread pattern, its inhabitants show a marked mobility among close settlements, a frequent fact in the *Puna* in particular, and in the Andes in general (Goebel, 1998; Mayer, 2004; Merlino & Rabey, 1978). This mobility is characterized by the successive occupation of the same residence by different members of extended family all along the year, or because of the temporal abandonment of the house. This dynamics has repercussions on the development of homegardens, which can be abandoned during periods when native plants or weedy forms of crops can grow. If the house is occupied by people that are not members of the same family, homegardens can be subjected to new management and criteria that though are shared in general by all the extended family, may assume particular features according who are occupying the house in the different moments of annual cycle. This is a demonstration that the structure and dynamics of homegardens are a material reflection of the structure and dynamics of the members of DU and their residence spaces.

Homegardens in Santa Victoria Oeste are also named *corralcitos* (`small corral') and they are placed very close to the house, near or adjoining to it. As in the previous cases each DU has only one homegarden. The local settlers place their houses in the bottom of the valley or in the low slopes, and they also have in the top of the slopes a minor temporal residence, called *puesto*, devoted to gardening and cattle raising where members of the DU (generally men) to supervise production. As in the case of El Shincal, both settlements are a part of the same DU. Both homegardens as the plots in *puestos* are devoted to family consumptions and local barter. The results obtained from 10 homegardens are here presented. Horticulture is developed in fluvial terraces, by profiting of the fertile soil layer which has *ca.* 40 cm thick. The garden is, generally, delimited by a dry *pirca* and has a subrectangular shape. Sometimes, inside the homegarden, small round structures of 80 cm diameter can be found, also demarcated by *pirca* of *ca.* 60 cm high. They are used as seedbeds (mostly to grow *tomate*, *lechuga*, *repollo* and *zapallito tronquero*, see Table 1), from where young plants are then moved to the central space of the garden. Irrigation is made by hand or by a pipe connected to the communal source of water. Cattle dejections are used as fertilizer and sometimes a better kind of earth is brought from elsewhere to enrich the local one. Seeds and propagules are mainly conserved from the own production. These characteristics are also mentioned for other communities in the Upper Basin of Bermejo River (Hilgert 2007a, 2007b; Hilgert & Gil 2006). In the homegarden ornamental plants (mainly flowers) are grown, besides vegetables. According to local people statements, medicinal plants are not cultivated because they do not grow well in the zone. A remarkable fact is the great diversity of varieties of corn observed in homegardens and in *puestos*, for instance *maíz blanco*, *maíz pisancalla*, among others, similar to the ones cultivated in El Shincal. As in this case, some varieties are exclusively grown in homegardens by the house because women prepare specific meals. Nevertheless, previous ethnobotanical studies put in evidence that, though local people sow a great diversity of crops of American origin, since 1982 there is a considerable increase of introduction of exotic plants (especially vegetables) that are replacing local cultures (Hurrell, 1990; Zardini & Pochettino, 1984). This situation was confirmed in the census conducted during this research: the amount of American cultivated species is always lower than the exotic ones.

Local names	Species	Families	Sampling sites	Local uses
Acelga	*Beta vulgaris* L. var. *cicla* L.	Chenopodiaceae	Rachaite, Coranzulí, El Shincal	Food
Achojcha	*Cyclanthera pedata* (L.) Schrader	Cucurbitaceae	Santa Victoria Oeste	Food
Ajenjo	*Artemisia absinthium* L.	Asteraceae	Rachaite, Coranzulí	Medicinal
Ají	*Capsicum annuum* L.	Solanaceae	El Shincal	Condiment
Albahaca	*Ocimum basilicum* L.	Lamiaceae	Santa Victoria Oeste,	Condiment
Alfa	*Medicago sativa* L.	Leguminosae	Rachaite, Coranzulí	Forage
Aloe vera	*Aloe vera* (L.) Burm. *f.*	Asphodelaceae	Rachaite, Coranzulí	Medicinal
Anco or Anquito	*Cucurbita pepo* L.	Cucurbitaceae	El Shincal	Food
Angola	*Cucurbita pepo* L.	Cucurbitaceae	El Shincal	Food
Arveja	*Pisum sativum* L.	Leguminosae	Rachaite, Coranzulí	Food
Cebada	*Hordeum vulgare* L.	Poaceae	Rachaite, Coranzulí	Food
Cayote	*Cucurbita ficifolia* Bouché	Cucurbitaceae	Santa Victoria Oeste	Food
Cebolla	*Allium cepa* L.	Alliaceae	Rachaite, Coranzulí, El Shincal	Food Condiment
Collareja	*Solanum tuberosum* L. subp. *andigena* (Juz. & Bukasov) Hawkes	Solanaceae	Rachaite, Coranzulí	Food
Coreanito	*Cucurbita pepo* L.	Cucurbitaceae	El Shincal	Food
Durazno	*Prunus persica* (L.) Batsch	Rosaceae	El Shincal	Food
Haba	*Vicia faba* L.	Leguminosae	Rachaite, Coranzulí	Food
Lechuga	*Lactuca sativa* L.	Asteraceae	Santa Victoria Oeste, Rachaite, Coranzulí, El Shincal	Food
Maíz	*Zea mays* L. cvs. "blanco", "blanco chico", "mediano", "diente de caballo", "pichingo", "socorro", "amarillo", "ocho rayas", "pisancalla"	Poaceae	Santa Victoria Oeste, Rachaite, Coranzulí, El Shincal	Food
Menta	*Mentha spicata* L.	Lamiaceae	Rachaite, Coranzulí	Medicinal
Morrón	*Capsicum annuum* L.	Solanaceae	El Shincal	Food

Muña-muña	*Clinopodium gilliesi* (Benth.) Kuntze	Lamiaceae	El Shincal	Medicinal
Nuez criolla	*Juglans regia* L.	Juglandaceae	El Shincal	Food
Oca	*Oxalis tuberosa* Molina	Oxalidaceae	Rachaite, Coranzulí	Food
Papa of various kinds	*Solanum tuberosum* L. subsp. *tuberosum* cvs.	Solanaceae	Rachaite, Coranzulí	Food
Papa lisa	*Ullucus tuberosus* Caldas	Basellaceae	Santa Victoria Oeste	Food
Pera	*Pyrus communis* L.	Rosaceae	El Shincal	Food
Perejil	*Petroselinum crispum* (Mill.) Fuss	Apiaceae	Rachaite, Coranzulí	Medicinal Condiment
Poroto de manteca	*Phaseolus lunatus* L.	Leguminosae	El Shincal	Food
Quínoa blanca	*Chenopodium quinoa* Willd.	Chenopodiaceae	Rachaite, Coranzulí	Food
Quínoa rosada	*Chenopodium quinoa* Willd.	Chenopodiaceae	Rachaite, Coranzulí	Food
Quitucho	*Capsicum chacoënse* Hunz.	Solanaceae	El Shincal	Condiment
Remolacha	*Beta vulgaris* L. var. *vulgaris*	Chenopodiaceae	Santa Victoria Oeste	Food
Repollo	*Brassica oleracea* L. var. *capitata* L.	Brassicaceae	Santa Victoria Oeste	Food
Ruda	*Ruta graveolens* L	Rutaceae	El Shincal	Medicinal Ornamental
Tomate	*Solanum lycopersicum* L.	Solanaceae	Santa Victoria Oeste, Rachaite, Coranzulí, El Shincal	Food
Trigo	*Triticum aestivum* L.	Poaceae	Rachaite, Coranzulí	Food
Zanahoria	*Daucus carota* L.	Apiaceae	Rachaite, Coranzulí, El Shincal	Food
Zapallito tronquero	*Cucurbita maxima* Duchesne subsp. *maxima* var. *zapallito* (Carriére) Millan	Cucurbitaceae	Santa Victoria Oeste	Food
Zapallo plomo	*Cucurbita maxima* subsp. *maxima*	Cucurbitaceae	El Shincal	Food
Zapallo silpingo	*Cucurbita maxima* subsp. *maxima* cv. "zipinka"	Cucurbitaceae	El Shincal	Food

Table 1. NOA homegardens, recorded ethnospecies, local names, botanical names, families, sampling sites and local uses

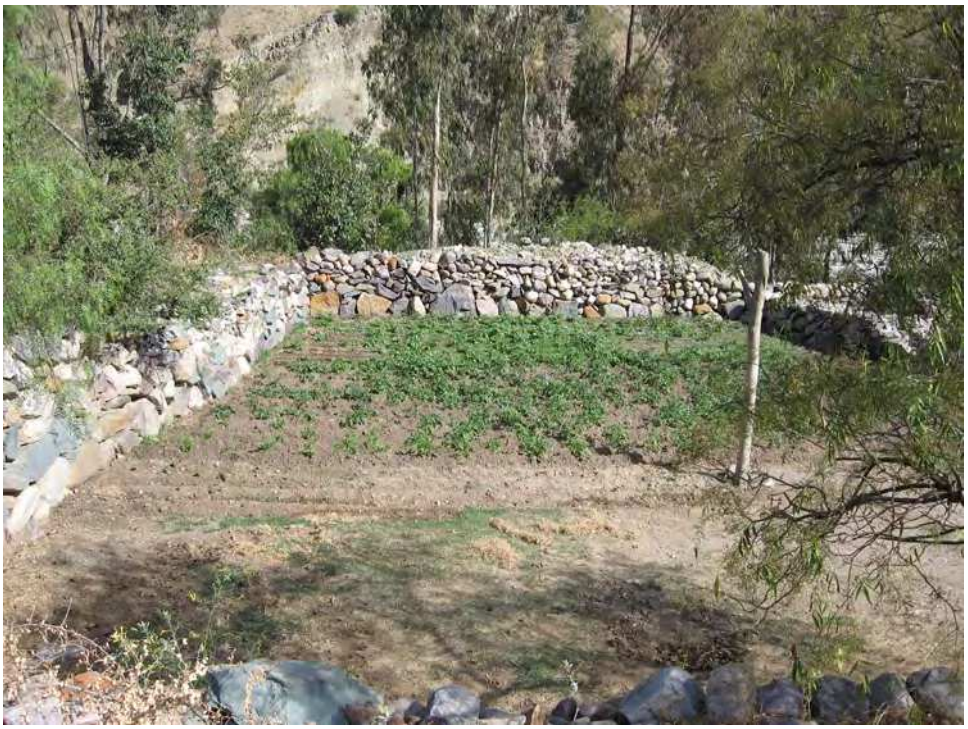

Fig. 2. A typical NOA homegarden (Santa Victoria Oeste)

3.2 RPA homegardens

In this area, homegardens are generally called *huertos* and less frequently, *quintas*. In all the cases they are located near the house of the family (that is nuclear), and usually constitute the unique place for horticulture practices, although some DU may have small places inside it. Food plants are placed in the central sector of the homegarden, and in some cases there is a special sector for aromatic and/or medicinal plants. In the homegarden a few specimens of fruit trees are also present, either disperser or in small groups. In Berisso district, the locations of Los Talas and Isla Paulino homegardens are associated to vineyards that emerged in the last years as a result of the effort of regional cooperatives. In Isla Paulino, vineyard sector have a little development, they are adjoining to homegardens forming a single unit, where is difficult to distinguish among both sectors. On the contrary, in Los Talas, vineyards occupy bigger plots and homegardens are nearby them. In all the cases men are in charge of horticultural tasks; women cooperate in that practice but their action scope is in the house. The production is destined to household consumption, but sometimes homemade products (marmelades, preserves, sauces, liquors), without additives, are prepared and then sold by direct sale (Turco *et al*., 2006), *in situ* or in the neighboring urban areas. Vineyards are set aside for production and sale of *vino de la costa*, and at present diverse organizations are trying to introduce this product in formal marketing. The reproductive material is obtained from the own production, or *by* seeds given by the

national government program Pro-Huerta from Instituto Nacional de Tecnología Agropecuaria have been used (INTA, 2011).

The ethnospecies recorded in 16 homegardens are presented in Table 2. A total of 80 species, subspecies and varieties, belonging to 27 botanical families have been recorded. The family with more taxa is Rosaceae: 11 (13.75%); it is followed by Cucurbitaceae and Lamiaceae, with 8 taxa each of them (10%), then Asteraceae, Leguminosae and Rutaceae, with 5 taxa each of them (6.25%), and Alliaceae and Solanaceae, that are represented by 4 taxa each family (5%). These families comprise 62.5% of the recorded taxa and in them, all the different kind of cultures characteristic of homegarden are represented: vegetables and pulses (Alliaceae, Asteraceae —*pro parte*–, Cucurbitaceae, Leguminosae, Solanaceae); medicinal and aromatic plants (Asteraceae —*pro parte*–, Lamiaceae, Verbenaceae) and fruits (Rosaceae, Rutaceae). In Isla Santiago homegardens the greater richness of cultivated taxa has been found: 71; while in Isla Paulino 49 taxa have been recorded, 47 taxa in Isla Martín García, and 40 in Los Talas. In this last location, where the lowest quantity of taxa has been registered, vineyards have reached the highest development. The species most frequent in all homegardens are vegetables: onion, tomato, beet, lettuce and corn. The main aromatic plants are: basil, lemon balm, mint and rosemary. The most common fruit trees are plum trees and *Citrus* tree. As regard to the production of *vino de la costa*, the cultivar of *Vitis labrusca* named "Isabella" is employed, but its fruits are not eaten.

Isla Paulino, of *ca.* 1300 ha in Berisso district, despite being only 10 km far from La Plata city, shows a precarious situation, without current services of electricity, gas and drinkable water. There is only one public telephone, but no school and only one sanitary post is open during summer. The transportation is fluvial with restricted schedules and often it is interrupted (Buet *et al*., 2010). According to Prefectura Naval Argentina, there live 32 people in 13 houses. The 3 studied homegardens are in the open, water is obtained from the river, by means of manual irrigation, with buckets or pipes, and some rudimentary channels have been constructed. Flooding is a constant threat and when it arrives, it causes a direct damage. Homegardens average size, strictly considered, is of 25 m x 10 m. The cultivated surface is limited by both wire fences and surrounding woody vegetation. The basis of horticultural venture is local people efforts to recover a productive activity originated in the practices brought by European immigrants arrived to the zone, which allows them daily sustenance and the obtaining of some money by means of direct sale of homemade products. Vineyards are the result of cooperative work that is trying to revitalize *vino de la costa*, former largely spread. Most of food species are commonly used and are present in all homegardens. Nevertheless, there are specific cultures, as is the case of *Sechium edule* (Jacq.) Sw., what is grown in only one homegarden because of family tradition.

Los Talas, also in Berisso district, contrarily to Isla Paulino, counts on electricity, drinkable water, phone and gas, and their inhabitants —a total of 494 in 2001 (INDEC, 2011)—, access by different pathways to schools and health centers, as well as the cities of Berisso, Ensenada and La Plata (Hernández *et al*., 2009). In this place, study area corresponds to *ca.* 300 ha, as only coastal area was considered, where homegardens and vineyards are located. As the latter are predominant, the 3 considered homegardens are smaller than those of Isla Paulino, and one of them includes a greenhouse. Water is distributed by channels, but irrigation is performed by hand. Production destiny is self-consumption.

Isla Santiago, in Ensenada district, is 800 ha large and it is 15 km far from La Plata city. In contrast to Isla Paulino, this place can be accessed either by river or by land, so a bus line from La Plata arrives there. In Isla Santiago there is initial and primary school and services of electricity, phone and drinkable water, but not gas. In 2001, there were 237 inhabitants, including Army Superior and Secondary School Río Santiago (INDEC, 2011); nowadays, according to Prefectura Naval Argentina, in this island lives 193 people in 83 houses. The current status is of recovering, after decades of abandonment of horticulture, job subocupation, and consequent depopulation. The 5 analyzed homegardens are smaller than those previously presented for the area, but they are diverse in size and shape, ranging from a square of 4 m^2 to a rectangle of 50 m x 25 m. Due to the initiative and personal effort of one gardener, the *kiwi*, *Actinidia chinensis* Planch. var. *deliciosa* (A. Chev.) A. Chev., was introduced in the island. This plant was in the past an extended commercial product, pioneer in RPA, but now remains as a relict. Other innovative gardener introduced in Isla Santiago is the *mango*, *Mangifera indica* L. As well, in other homegarden *Sechium edule* is planted, also linked to family tradition. *Poroto japonés*, *Lablab purpureus* (L.) Sweet, is here cultivated for the same reason, and it was found too in Isla Martín García.

Isla Martín García, situated in the Northern extreme of Río de la Plata, is under direct jurisdiction of Government Ministery of Buenos Aires Province. So, all plots are fiscal ones and all inhabitants are public employees in activities such as services and maintenance, or they have franchises of commercial exploitations (restaurants, camping, grocery) by paying a canon. Counting on 200 ha, it has rocky basement (one of the oldest of the country) on the contrary than the other sedimentary islands of Río de la Plata, but as well, it receives continuous contributions of sediments that modify the constitution and vegetation of the coasts. It has about 200 inhabitants (INDEC, 2011), there is no gas, but services include drinkable water and electricity (with water treatment plant and power station in the island), as well as phone, hospital, school and ship line that connects it regularly to mainland. Besides by river, it can be accessed by air, as it counts on an aerodrome with a large landing area constructed when the island was property of Argentine Army. It is easily seen that in this context, horticulture is not a typical practice in Isla Martín García, which main activity is based on tourism. The 5 studied homegardens are limited to small plots opened during the last 35 years. They have a restricted surface, not bigger than 10 m on a side, manually irrigated. The production is for self-consumption and no handmade products are confectioned to be sold. It is noteworthy that in Isla Martín García, but also in Isla Paulino and Isla Santiago, people grow *Tetrapanax papyrifera* (Hook.) K. Koch that is given the name *ambay*, because of the similitude of its leaves with those of *Cecropia pachystachya* Trécul. (= *C. adenopus* Mart. *ex* Miq.). The properties locally attributed to *T. papyrifera* are the same that the correspondent to *C. pachystachya* in Northeastern Argentine, that is its area of origin: it is used as expectorant and against cough and catarrh, as well as against asthma. In all the three locations *T. papyrifera* is cultivated in the belief that it is *C. Pachystachya*, and its cultivation is linked to a knowledge based on family traditions referred to the employ or *C. pachystachya*. Nevertheless, *T. papyrifera* also has therapeutic uses (antitussive, diuretic, febrifuge, vermífuge), although it is cultivated mainly as ornamental.

Local names	Species	Families	Sampling sites	Local uses
Acelga	*Beta vulgaris* L. var. *cicla* L.	Chenopodiaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food
Achicoria	*Cichorium intybus* L.	Asteraceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food
Ajenjo	*Artemisia absinthium* L.	Asteraceae	Isla Santiago	Medicinal
Ají	*Capsicum annuum* L.	Solanaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Condiment
Albahaca	*Ocimum basilicum* L.	Lamiaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Condiment Medicinal
Almendra	*Prunus amygdalus* (L.) Batsch	Rosaceae	Isla Paulino	Food
Aloe	*Aloe arborescens* Mill.	Asphodelaceae	Isla Paulino	Medicinal
Aloe	*Aloe vera* (L.) Burm. *f.*	Asphodelaceae	Isla Martín García, Isla Santiago, Isla Paulino	Medicinal
Ambay	*Tetrapanax papyrifera* (Hook.) K. Koch	Araliaceae	Isla Martín García, Isla Santiago, Isla Paulino	Ornamental Medicinal
Anco	*Cucurbita moschata* (Lam.) Poir.	Cucurbitaceae	Isla Martín García, Isla Santiago, Los Talas	Food
Apio	*Apium graveolens* L.	Apiaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food
Arveja	*Pisum sativum* L.	Leguminosae	Isla Santiago, Isla Paulino, Los Talas	Food
Banana	*Musa* x *paradisiaca* L.	Musaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food
Batata	*Ipomoea batatas* (L.) Lam.	Convolvulaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food
Berenjena	*Solanum melongena* L.	Solanaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food
Caléndula	*Calendula officinalis* L.	Asteraceae	Isla Santiago	Ornamental Medicinal
Caqui	*Diospyros kaki* Thunb.	Ebenaceae	Isla Santiago, Isla Paulino	Food
Cebolla	*Allium cepa* L.	Alliaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food Condiment

Cebolla de verdeo	*Allium fistulosum* L.	Alliaceae	Isla Martín García, Isla Santiago, Los Talas	Food Condiment
Cedrón	*Aloysia citriodora* Palau	Verbenaceae	Isla Santiago	Medicinal
Cereza	*Prunus avium* (L.) L.	Rosaceae	Isla Santiago	Food
Choclo or Maíz	*Zea mays* L.	Poaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food
Ciboulette or Cebollín	*Allium schoenoprasum* L.	Alliaceae	Isla Martín García, Isla Santiago, Los Talas	Food Condiment
Ciruela	*Prunus domestica* L.	Rosaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food
Damasco	*Prunus armeniaca* L.	Rosaceae	Isla Martín García	Food
Durazno	*Prunus persica* (L.) Batsch	Rosaceae	Isla Martín García	Food
Escarola	*Cichorium endivia* L.	Asteraceae	Isla Santiago, Isla Paulino	Food
Espinaca	*Spinacia oleracea* L.	Chenopodiaceae	Isla Paulino, Los Talas	Food
Eucalipto	*Eucalyptus cinerea* Benth.	Myrtaceae	Isla Santiago	Medicinal
Frutilla	*Fragaria* x *ananassa* (Weston) Duchesne	Rosaceae	Isla Santiago, Isla Paulino	Food
Guinda	*Prunus cerasus* L.	Rosaceae	Isla Martín García, Isla Santiago	Food
Granada	*Punica granatum* L.	Lythraceae	Isla Santiago, Los Talas	Food
Haba	*Vicia faba* L.	Leguminosae	Isla Santiago, Isla Paulino, Los Talas	Food
Higo	*Ficus carica* L.	Moraceae	Isla Santiago, Isla Paulino, Los Talas	Food
Kiwi	*Actinidia chinensis* Planch. var. *deliciosa* (A. Chev.) A. Chev.	Actinidiaceae	Isla Santiago	Food
Laurel	*Laurus nobilis* L.	Lauraceae	Isla Martín García, Isla Paulino, Los Talas	Condiment Medicinal
Lavanda	*Lavandula angustifolia* Mill.	Lamiaceae	Isla Santiago, Isla Paulino	Medicinal
Lechuga criolla	*Lactuca sativa* L.	Asteraceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food
Limón	*Citrus* x *limon* (L.) Osbeck	Rutaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food Condiment
Mandarina	*Citrus reticulata* Blanco	Rutaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food

Mango	*Mangifera indica* L.	Anacardiacae	Isla Santiago	Food
Manzana	*Malus pumila* Mill.	Rosaceae	Isla Santiago, Isla Paulino	Food
Melisa or Toronjil	*Melissa officinalis* L.	Lamiaceae	Isla Santiago	Medicinal
Melón	*Cucumis melo* L.	Cucurbitaceae	Isla Martín García, Isla Santiago, Los Talas	Food
Membrillo	*Cydonia oblonga* Mill.	Rosaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food
Menta	*Mentha spicata* L.	Lamiaceae	Isla Martín García, Isla Santiago	Medicinal
Morrón	*Capsicum annuum* L.	Solanaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food
Naranja	*Citrus* x *aurantium* L. (cvs.)	Rutaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food
Nuez de pecán	*Carya illinoinensis* (Wangenh.) K. Koch	Juglandaceae	Isla Paulino	Food
Níspero	*Eriobotrya japonica* (Thunb.) Lindl.	Rosaceae	Isla Santiago, Isla Paulino, Los Talas	Food
Olivo	*Olea europea* L.	Oleaceae	Isla Paulino	Food
Orégano	*Origanum vulgare* L.	Lamiaceae	Isla Martín García, Isla Santiago, Isla Paulino	Condiment Medicinal
Palta	*Persea americana* Mill.	Lauraceae	Isla Santiago, Isla Paulino	Food
Papa	*Solanum tuberosum* L.	Solanaceae	Isla Santiago	Food
Papa del aire	*Sechium edule* (Jacq.) Sw.	Cucurbitaceae	Isla Santiago, Isla Paulino	Food
Pasto limón	*Cymbopogon citratus* (DC.) Stapf	Poaceae	Isla Santiago	Condiment Medicinal
Pepino	*Cucumis sativus* L.	Cucurbitaceae	Isla Martín García, Isla Santiago	Food
Pera	*Pyrus communis* L.	Rosaceae	Isla Santiago, Isla Paulino	Food
Perejil	*Petroselinum crispum* (Mill.) Fuss.	Apiaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food
Poleo	*Lippia turbinata* Griseb.	Verbenaceae	Isla Santiago	Medicinal
Pomelo	*Citrus* x *aurantium* L. (cvs.)	Rutaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food
Poroto	*Phaseolus vulgaris* L.	Leguminosae	Isla Martín García	Food
Poroto de manteca	*Phaseolus lunatus* L.	Leguminosae	Isla Martín García, Isla Santiago, Los Talas	Food

Poroto japonés	*Lablab purpureus* (L.) Sweet	Leguminosae	Isla Martín García, Isla Santiago	Food
Puerro	*Allium ampeloprasum* L.	Alliaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food Condiment
Quinoto	*Citrus japonica* Thunb.	Rutaceae	Isla Martín García, Isla Santiago, Los Talas	Food
Rabanito	*Raphanus sativus* L.	Brassicaceae	Isla Martín García, Isla Santiago	Food
Remolacha	*Beta vulgaris* L. var. *vulgaris*	Chenopodiaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food
Repollo	*Brassica oleracea* L. var. *capitata* L.	Brassicaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food
Romero	*Rosmarinus officinalis* L.	Lamiaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Condiment Medicinal
Rúcula	*Eruca vesicaria* (L.) Cav.	Brassicaceae	Isla Martín García, Isla Santiago, Isla Paulino	Food Condiment
Salvia	*Salvia officinalis* L.	Lamiaceae	Isla Santiago	Condiment
Sandía	*Citrullus lanatus* (Thunb.) Matsum. & Nakai	Cucurbitaceae	Isla Martín García, Isla Santiago, Los Talas	Food
Tomate	*Solanum lycopersicum* L.	Solanaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food
Tomillo	*Thymus vulgaris* L.	Lamiaceae	Isla Santiago	Condiment
Uva americana	*Vitis labrusca* L.	Vitaceae	Isla Santiago, Isla Paulino, Los Talas	Wine
Uva europea	*Vitis vinifera L.*	Vitaceae	Isla Santiago	Food
Zanahoria	*Daucus carota* L.	Apiaceae	Isla Martín García, Isla Santiago, Isla Paulino, Los Talas	Food
Zapallo	*Cucurbita maxima* Duchesne subsp. *maxima*	Cucurbitaceae	Isla Martín García, Isla Santiago, Isla Paulino	Food
Zapallo hongo	*Cucurbita maxima* Duchesne subsp. *maxima* (cv.)	Cucurbitaceae	Isla Martín García, Isla Santiago, Isla Paulino	Food
Zapallito	*C. maxima* subsp. *maxima* var. *zapallito* (Carriére) Millan	Cucurbitaceae	Isla Martín García, Isla Santiago, Los Talas	Food

Table 2. RPA homegardens, recorded ethnospecies, local names, botanical names, families, sampling sites and local uses

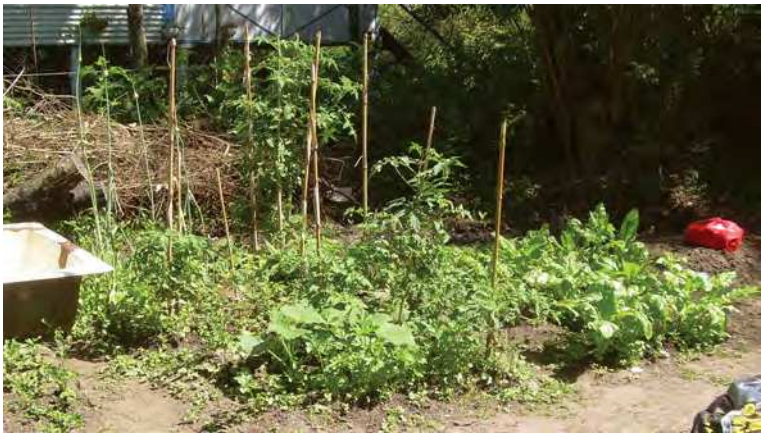

Fig. 3. A typical RPA homegarden (Isla Paulino)

4. Discussion

By comparison with large scale agriculture areas, that are in general large extensions with one or a few species (homogeneous), the studied homegardens both in NOA as in RPA, are reduced spaces with a high biodiversity (highly heterogeneous), as they are spaces of multiple production, where plants with diverse applications (food, condiment, medicine, ornamental, forage) are grown.

Homegardens have differential features referred to their *materiality* and *spatiality*. Both homegardens of NOA and RPA are small plots close to the residential structures of domestic units. In NOA, homegarden is constituted by only one space, while in RPA, though the single space is the general tendency, some DU can have a parted homegarden between various plots. In RPA there are also spaces assigned to the cultivation of low number of fruit trees. In some of the studied sited of this last area, homegardens are linked with vineyards, that occasionally may have not a high development and are adjoining to homegardens, so they are considered as only one unit. Other times, vineyards occupy larger extensions and homegardens are then adjoined to them. In NOA, homegardens are never nearby the larger areas of commercial cultivation, which are also separated from DU residential space, to take advantage of the different microenvironments that are found in the area.

In homegardens, *selection criteria* and *management practices* are decided by the own DU, by contrast with the areas of commercial cultivation that are governed by market, other DU or other communities members. In the case of NOA, homegardens production is exclusively employed for self-consumption, only in a few exceptions the members of DU exchange vegetables, seeds or propagules, mostly after the successful introduction of new varieties. In RPA homegardens, although the major part of the production goes to household consumption, occasionally homemade products are marketed at a low scale by means of direct sale. In RPA the origin of current cultures is the own production of DU, or informal exchanges, even the contribution of agencies not linked to local communities, for instance government organisms, but there are also several cases where the proceeding of determined species can be only explained by family traditions: *Sechium edule* (Isla Santiago, Isla Paulino),

Lablab purpureus (Isla Martín García, Isla Santiago). This results on a great agrodiversity, as a consequence of different traditions in vogue conforming the pluricultural context of the area. A similar situation is observed in NOA, where the presence of certain species is linked to family wisdom, either culinary (for instance, dishes prepared with particular varieties of corn in El Shincal and Santa Victoria Oeste; some of them in occasion of festivities as is the case of *humitas* prepared during Holy Week in El Shincal) or therapeutic ones. In adittion, in NOA people conserve productive technology and architecture (*patías*, in Rachaite; homegardens with adobe walls as thermal regulators in Coranzulí) which history can be traced in the prehispanic past of the region. This Andean tradition is also expressed in a high infraspecific diversity of American crops anciently domesticated. It is necessary to think about personal motivations in these situations of change, that, as it was previously exposed, have led to the restoring and revalorization of relictual crops in the homegardens.

Homegardens are also *dynamic spaces*. In both study areas, it is observed that they can change their physiognomy (covered or not), and as a consequence their microclimatic conditions, as well as the association of species, they may be as well abandoned during certain time to be then used again, and it is usual to find specimens planted in different moments of horticultural cycle, all of them in different growth status. The dynamics of this productive area is assembled with the UD one, as when members move from a residence to another, selection criteria also change. Therefore, it is an artificial space, a social artifact (Mayer, 2004) where the relationship human beings-plant is flexible, subject to local contingencies and criteria, shaped by each DU peculiarities, which contributes to its differential perdurability.

Homegardens are *spaces of innovation and experimentation* for the cultivation of new species or varieties (for instance pear in NOA, kiwi and mango in RPA). This aspect also has been recorded in both Peruvian and Chilean Puna (Aldunante *et al*., 1981; Mayer, 2004), where general characterization of homegardens is similar to the one given here (Harris, 1969, 1989). Furthermore, it has to be mentioned the incorporation of new technologies and seeds given by organisms foreign to local community, what is noticeable in the physical spaces occupied by homegardens in both study areas. Both in Coranzulí and Santa Victoria Oeste in NOA, as in RPA, by means of the program Pro-Huerta developed by the national agency for the development of agriculture (INTA) seeds, other consumables, and technical advice were given to gardeners. This program is enclosed in the national plan for food security, which is supposed to guarantee a diversified nourishing, by means of the self production of fresh food (INTA, 2011). The newly incorporated elements are then adapted to local characteristics, particularly in NOA where the weather does not fit in the general patterns employed in national programs. This fact is easily seen in structural changes made in greenhouses in Coranzulí (nylon roofs were replaced by metallic screen) and the seedbeds in Santa Victoria Oeste, where this new sowing practice has been technologically adapted to local productive architecture.

Homegardens can be considered *reservoirs of plant varieties with different degree of association with human beings*, what is evidenced in the simultaneous presence in homegardens of cultivated specimens, either domesticated or not, associated with weedy and wild plants. So, homegardens can also be seen as *reservoirs of cultural practices of management.* NOA homegardens (in particular those in the high) constitute a clear example of productive

spaces where plant species are handled: cuttings, sowing, care, tolerance and eradication of different plants are done, without producing a uniform population of domesticated plants. On the contrary there exists a wide range of botanical elements which relationship with human beings is closer or looser according to reproductive autonomy and phenotypic associated changes. The authors assume that this situation emerges from the very close relationship held by gardeners with the plants that they select. This relationship is characterized by a low degree of environmental disturbance, and the management of a diverse set of plants that are cultivated, tolerated and supported against market tendencies, and, in very few cases, they are refused and or eradicated. That is why in a homegarden there are many cultivated plants, several wild ones and very few weeds.

5. Conclusions

Horticulture carried out in homegardens, by means of the study of its practices, is a valuable tool to evaluate the BK that guides them. Homegardes constitute a propitious sphere to develop ethnobotanical studies, because of their reduced scale and the proximity of the productive plot to the residential segment, both of domestic unit. Nevertheless, they show a great diversity in species and varieties, which destiny is not only as food, but condiment, medicine and ornament as well. This diversity is expressive of the different degrees of relationship of family group with their plant resources: when considering weeds that accompany some crops, this diversity increases. Therefore, homegardens are spaces where BK becomes *visible* (TBK or BK linked to traditions), where knowledge and beliefs are embodied in strategies and practices, through the direct contact between human beings and their environment, what shapes a dynamic and versatile relationship between people and plants (Pochettino & Lema, 2008).

On the one hand, in areas with an ancient tradition of occupation and horticultural activity, as the case of rural communities in NOA reflects, the relationship is explained by homegarden domestic character, as it is the productive aspect of DU (while house is the residential aspect), that in turn prints its own features in homegardens: its members history, the dynamics of occupation of the house, selection criteria of species and management practices of cultivation plots linked to local/familiar traditions as well as personal preferences. For these reasons, homegardens constitute a particularly rich field to ethnobotanical studies devoted to local BK from the perspective of the own involved actors.

On the other hand, periurban sectors of RPA are part —for a combination of geographic as historical, economical and social reasons— of the complex conurbation Buenos Aires-La Plata, the biggest one in Argentina, both in extension as in population. In this frame, this work contributes to the development of Urban Ethnobotany, as it analyzes, within the characterization of *urban botanical knowledge* (Hurrell *et al*., 2011; Pochettino *et al*., 2011), the components linked to traditions of different origin (groups of immigrants, familiar preferences, culinary wisdom and therapeutic practices), which remain invisible for most of the urban population, but are the basis of horticultural activity in RPA. Thus, horticultural practices in periurban homegardens rely largely on family traditions, so they are guided by a BK linked to traditions, but not traditional itself. Because of their own functionality, homegardens are dynamic systems because the BK that guides their

practices becomes from dynamics adaptations to specific conditions. In NOA horticulture, in a homogeneous cultural context, BK is mainly *traditional*. In periurban horticulture, in a major pluricultural context of the conurbation where it is immersed, the current BK is *linked to traditions*. In both cases, BK is *adaptative* as it allows the gardeners to make adjustments to environment changing conditions, by means of the orientation of their strategies of selection and use of plants. Consequently, their study and preservation are necessary.

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7. References

Albeck, M. E. (2003/2005). Sitios agrícolas prehispánicos: la búsqueda de indicadores cronológicos y culturales. *Cuad. Inst. Nac. Antropol. y Pensamiento Latinoamericano* Vol. 20, pp. 13-26, ISSN 0570-8346.

Albeck, M. E., Lupo, L., Maloberti, M., Pigoni, M., Zapatiel, J., Korstanje, A. & Cuenya, P. (2008). An interdisciplinary approach for Coctaca: Stimulating results for the comprehension of an ancient agricultural complex. *VII Int. Meeting Phytolith Res. IV Southamer. Meeting Phytolith Res.*, pp. 59. Mar del Plata.

Albuquerque, U. P. de & Hurrell, J. A. (2010). Ethnobotany: one concept and many interpretations. In: *Recent developments and case studies in Ethnobotany,* Albuquerque, U. P. de & Hanazaki, N. (eds.), pp. 87-99. Brazilian Soc Ethnobiol & Ethnoecol/Publ Group of Ecol & Appl Ethnobot, Recife, ISBN 978-85-7716-711-1.

Albuquerque, U. P. de & Lucena, R. F. (2004). Métodos e técnicas na pesquisa etnobotánica. Livro Rápido/NUPEEA, Recife, ISBN 85-89501-26-4.

Albuquerque, U. P. de, Andrade, L. & Caballero, J. (2005). Structure and floristics of homegardens in Northeastern Brazil. *J. Arid Environments* Vol. 62, pp. 491-506, ISSN 0140-1963.

Aldunante, C.; Armesto, J.; Castro V & Villagrán, C. (1981). Estudio etnobotánico en una comunidad precordillerana de Antofagasta: Toconce. *Bol. Museo Hist. Nat. Chile*, Vol. 38, pp. 183-223, ISSN 0027-3910.

Alexíades, M. N. & Sheldon, J. W. (1996). *Selected guidelines for ethnobotanical research: a field manual*. The New York Botanical Garden, New York, ISBN 0893274046.

Balick, M. J. & Cox, P. (1996). *Plants, people and culture. The science of Ethnobotany*. Sci. Amer. Library, New York, ISBN 0-7167-5061-9.

Barsky, A. (2010). La agricultura de "cercanías" a la ciudad y los ciclos del territorio periurbano. Reflexiones sobre el caso de la Región Metropolitana de Buenos Aires. In: *Agricultura periurbana en Argentina y globalización. Escenarios, recorridos y problemas*, Svetlitza de Nemirovsky, A. (ed.), pp. 15-29. FLACSO, Buenos Aires, ISSN 2218-5682.

Blanckaert, I., Swennen, R., Paredes, M., Rosas, R. & Lira Saade, R. (2004). Floristic composition, plant uses and management practices in homegardens of San Rafael Coxcatlán, Valley of Tehuacán, Mexico. *J. Arid Environments* Vol. 57, pp. 179-202, ISSN 0140-1963.

Berberián, E. & Nielsen, A. (1988). Sistemas de asentamiento prehispánicos en la etapa formativa del Valle de Tafi. In: *Sistemas de asentamiento prehispánicos en el Valle de Tafí* , Berberián, E. & Nielsen, A. (eds.), pp. 21-55. Comechingonia, Córdoba, ISSN 0326-7911.

Boixadós, R. (2002). Los pueblos de indios de La Rioja colonial. Tierra, trabajo y tributo en el siglo XVII. In: *Los pueblos de indios del Tucumán colonial. Pervivencia y desestructuración*. Farberman J. & Gil Montero, R. (eds.), pp. 15-17, Ed. UNQ, Buenos Aires, ISBN 978-987-9173-64-0.

Buet Costantino, F., Ulibarri, E. A. & Hurrell, J. A. (2010). Las huertas familiares en la isla Paulino (Buenos Aires, Argentina). In: *Tradiciones y Transformaciones en Etnobotánica*, Pochettino, M. L., Ladio A. H. & Arenas, P. M. (eds.), pp. 479-484. CYTED-RISAPRET, San Salvador de Jujuy, ISBN 978-84-96023-95-6.

Cabrera, A. L. (1949). Las comunidades vegetales de los alrededores de La Plata (Provincia de Buenos Aires, República Argentina). *Lilloa* Vol. 20, pp. 296-376, ISSN 0075-9481.

Cabrera, A. L. (1976). Regiones fitogeográficas argentinas. *Encicl. Argent. Agric. Jard*. Vol 2, pp. 1-85. Acme, Buenos Aires, ISBN 950-566-314-5.

Capparelli, A., Lema V. y & Giovannetti, M. (2004) El poder de las plantas. In: *El Shincal de Quimivil*, Raffino, R. (ed.), pp: 140-163. Editorial Sarquís, Catamarca, ISBN: 987-9170-33-4

Capparelli, A., Lema, V., Giovannetti, M. & Raffino, R. (2005). Introduction of European crops (wheat, barley and peach) in Andean Argentina during the 16th century: archaeobotanical and ethnohistorical evidence. *Vegetation History and Archaeobotany* Vol. 14, pp. 472-484**,** ISSN 0939-6314**.**

Capparelli, A., Hilgert, N., Ladio, A. H., Lema, V., Llano C., Molares, S., Pochettino, M. L., & Stampella. P. (2011). Paisajes culturales de Argentina: pasado y presente desde la perspectiva etnobotánica y arqueobotánica *Revista En Línea de la Asociación Argentina de Ecología del Paisaje* Vol. 2, No. 2 (in press), ISSN 1853-8045

Castellano, M. (2000). Updating aboriginal traditions of knowledge. In: *Indigenous knowledges in global contexts. Multiple readings of our world,* Sefa Dei, G. J., Hall, B. L. & Rosenberg, D. G. (eds.), pp. 21-36. University of Toronto Press, Toronto, ISBN 13: 978-0802080592.

Das, T. & Das. A. K. (2005). Inventorying plant biodiversity in homegardens. A case study in Barak Valley, Assam, North East India. *Current Sci*. Vol. 89, No. 1, pp. 155-163, ISSN: 0011-3891.

Del Río, J., Maidana, J., Molteni, A., Pérez, M., Pochettino, M. L., Souilla, L., Tito, G. & Turco, E. (2007). El rol de las "quintas" familiares del Parque Pereyra Iraola (Buenos Aires, Argentina) en la conservación de la agrobiodiversidad. *Kurtziana* Vol. 33, No. 1, pp. 217-226, ISSN 1852-5962.

Gadgil, M., Berkes, F. & Folke, C. (1993). Indigenous knowledge for biodiversity conservation. *AMBIO* Vol. 22, No. 2-3, pp. 151-156, ISSN 0044-7447.

García, M. (2010). Inicios, consolidación y diferenciación de la horticultura platense. In: *Agricultura periurbana en Argentina y globalización. Escenarios, recorridos y problemas*, Svetlitza de Nemirovsky, A. (ed.), pp. 69-85. FLACSO, Buenos Aires, ISSN 2218-5682.

García, S., Rolandi, D., López, M. & Valeri, P. (2002), "Alfa", vega y hortaliza. Riego y siembra en Antofagasta de la Sierra, puna catamarqueña. *Relaciones Soc. Argent. Antropol.* Vol. 27, pp. 79-100, ISSN 0325-2221.

Goebel, B. (1998). "Salir de viaje" Producción pastoril e intercambio económico en el noroeste argentino. *Estudios Americanistas de Bonn,* Vol. 30, pp. 867-891, ISSN 0176-6546.

Harris, D. (1969). Agricultural systems, ecosystems and the origins of agriculture. In: *The domestication and exploitation of plants and animals,* Ucko, P. & Dimbleby, G. (eds.), pp. 3-15 , Duckworth, London, ISBN 9780202361697.

Harris, D. (1989). An evolutionary continuum of people-plant interaction. In: *Foraging and Farming. The evolution of plan exploitation*, D. Harris, D. & Hillman, G. (eds.), pp. 11-26. Unwin Hyman, London, ISBN 978-0044452355..

Hernández, M. P., Colares, S. M. & Civitella, S. M. (2009). Plantas utilizadas en medicina popular en un sector del Partido de Berisso, Buenos Aires, Argentina. *Bol. Latinoamer. Caribe Pl. Medic. Aromát*. Vol. 8, No. 5, pp. 435-444, ISSN 0717-7917.

Hilgert, N. I. (2007a). Plantas silvestres, ámbito doméstico y subsistencia. In: *Finca San Andrés. Un espacio de cambios ambientales y sociales en el Alto Bermejo*, Brown, A. D., García Moritán, M., Ventura, B. N., Hilgert, N. I. & Malizia, L. R. (eds.), pp. 167-228, Ediciones del Subtrópico, Tucumán, ISBN 978-987-23533-1-5

Hilgert, N. I. (2007b). La vinculación del hombre actual con los recursos naturales y el uso de la tierra. In: *Finca San Andrés. Un espacio de cambios ambientales y sociales en el Alto Bermejo.* , Brown, A. D., García Moritán, M., Ventura, B. N., Hilgert, N. I. & Malizia, L. R. (eds.), pp. 159-186. Ediciones del Subtrópico, Tucumán, ISBN 978-987-23533-1-5

Hilgert, N. I. & Gil, G. E. (2006). Plants of the Las Yungas Biosphere Reserve, Northwest of Argentina, used in health care. *Biodiversity & Conservation* Vol. 15, pp. 2565-2594.

Hilgert, N. I. & Gil, G. E. (2008). Los cambios de uso del ambiente y la medicina herbolaria. Estudio de caso en Yungas argentinas. *Bol. Latinoam. Caribe Pl. Medic. Aromat.* Vol. 7, No. 3, pp. 130-140, ISSN 0960-3115.

Hurrell, J. A. (1987). Las posibilidades de la etnobotánica y un nuevo enfoque a partir de la ecología y su propuesta cibernética. *Revista Española Antropol. Amer. (Madrid)* Vol. 17, pp. 235-258, ISSN 0556-6533.

Hurrell, J. A. (1990). *Interpretación de relaciones en ecología, a partir de la noción de sistema, en Santa Victoria e Iruya (Salta, Argentina).* Tesis Doctoral 548 (inédita). Facultad de Ciencias Naturales y Museo, Universidad Nacional de La Plata.

Hurrell, J. A. (1991). Etnomedicina: enfermedad y adaptación en Iruya y Santa Victoria (Salta, Argentina). *Revista Museo de La Plata (n.s.) Antropol.* 9 (69): 109-124. ISSN 0376-2149.

Hurrell, J. A. (ed.). 2008. *Flora Rioplatense* Vol. 3, No. 1, pp. 1-334. Ed. Lola, Buenos Aires, ISBN 978-987-1533-02-2.

Hurrell, J. A. & de la Sota, E. R. (1996). Etnobotánica de las Pteridófitas de los pastizales de altura de Santa Victoria (Salta, Argentina). *Revista Museo de La Plata (n.s.) Bot.* 14 (104-105): 151-164. ISSN 0376-2149.

Hurrell, J. A., Ulibarri, E. A., Puentes, J. P., Buet Costantino, F., Arenas, P. M. & Pochettino, M. L. (2011). Leguminosas medicinales y alimenticias utilizadas en la conurbación Buenos Aires-La Plata, Argentina. *Bol. Latinoam. Caribe Pt. Med. Aromat.* Vol. 10. No. 5, pp. 443-455, ISSN 0960-3115.

INDEC (2011). Instituto Nacional de Estadística y Censos. Argentina. VI-2011, Available from: < http://www.indec.mecon.ar>

INTA (2011). Instituto Nacional de Tecnología Agropecuaria. Argentina. VII-2011. Available from: <http://www.inta.gov.ar>

King, A. (2000). A brief review of participatory tools and techniques for the conservation and use of plant genetic resources. In: *Participatory approaches to the conservation and use of plant genetic resources*, Friis-Hansen, E. & Sthapit, B. (eds.), pp. 27-43. Int. Pl. Gen. Res. Inst., Rome, ISBN 9789290434443.

Lamont, S., Hardy Eshbaugh, W. & Greenberg, A. (1999). Species composition, diversity, and use of homegardens among three Amazonian villages. *Econ. Bot.* Vol. 53, No. 3, pp. 312-326, ISSN 0013-0001.

Lema, V. (2006). Huertos de altura: el manejo humano de especies vegetales en la puna argentina. *Revista de la Escuela de Antropología* Vol. 12, pp. 173-186. Universidad Nacional de Rosario, ISSN 1852-1576.

Lema, V. (2009). Domesticación vegetal y grados de dependencia ser humano-planta en el desarrollo cultural prehispánico del noroeste argentino Tesis Doctoral 1020 (inédita), Facultad de Ciencias Naturales y Museo, Universidad Nacional de La Plata, La Plata.

Llambí, A. (1973). *La Isla Martín García*. Ministerio de Bienestar Social, Provincia de Buenos Aires, La Plata.

Maffi, L (2001). Introduction. On the interdependence of biological and cultural diversity. In: *On biocultural diversity*, Maffi, L. (ed.), pp. 1-50. Smithsonian, Washington, ISBN 1-56098-905-X.

Maidana, J., Pérez, M., Tito, G. & Turco, E. (2005). Ecohorticultura en el Parque Pereyra, La Plata-Berazategui (Buenos Aires, Argentina). LEISA, *Revista de Agroecología* Vol. 20, No. 4, pp. 42-44, ISSN 1729-7419.

Marasas, M. & Velarde, I. (2000). Rescate del saber tradicional como estrategia de desarrollo: los viñateros de la costa. *Bol. ILEIA* Vol. 16, No. 2, pp. 23-24.

Martin, G. J. (2004). *Ethnobotany. A methods manual*. Earthscan, London, ISBN 1844070840.

Martínez, M. R. & Pochettino, M. L. (1999). El valor del conocimiento etnobotánico local: aporte a la currícula educativa en el área de biología en las escuelas de Molinos. Valles Calchaquíes, Provincia de Salta. *Cuad. INAPL* Vol. 18, pp. 257-270, ISSN 0570-8346.

Martínez, M. R. & Pochettino, M. L. (2004). Microambientes y recursos vegetales terapéuticos. Conocimiento local en Molinos, Salta, Argentina. *Zonas Áridas* Vol. 8, pp. 18-31, ISSN 1013-445X.

Martínez, M. R., Pochettino, M. L. & Arenas, P. M. (2003). La horticultura: estrategia de subsistencia en contextos pluriculturales, Valle del Cuñapirú, Misiones, Argentina. *Delpinoa* Vol. 45, pp. 89-98, ISSN 0416-928X.

Mayer, E. (2004). *Casa, chacra y dinero. Economías domésticas y ecología en los Andes*. Inst. Estud. Peruanos, Lima, ISBN 9789972511165.

Merlino, R. & Rabey, M. (1978). El ciclo agrario-ritual en la puna argentina. *Relaciones Soc. Argent. Antropol.* Vol. 12, pp. 47-70, ISSN 0325-2221.

Michellod, O. E. (2000). *La identidad del paisaje urbano a través de la memoria. Berisso, Argentina*. Ed. Al Margen, La Plata, ISBN 978-84-96023-95-6.

Muscio, H. (1999). Colonización humana del NOA y variación en el consumo de los recursos: la ecología de los cazadores recolectores de la Puna en la transición Pleistoceno-Holoceno. *Naya*, IV-2008. Available from: <http://www.antropologia.com.ar>

Nazarea, V. (1998). *Cultural Memory and Biodiversity*. University of Arizona Press, Tucson, ISBN 9780816516810.

Nielsen, A. (1996). Demografía y cambio social en la Quebrada de Humahuaca (Jujuy, Argentina) *ca*. 700-1535 d.C. *Relaciones Soc. Argent. Antropol.* Vol. 21, pp. 307-385, ISSN 0325-2221.

Ottonello, M. & Ruthsatz, B. (1986). Agricultura prehispánica y la comunidad hoy en la quebrada de Rachaite. Provincia de Jujuy, Argentina. *Runa* Vol. 16, pp. 1-27, ISSN 0325-1217.

Pérez, M., Tito, G. & Turco, E. (2008). La producción sin agrotóxicos del Parque Pereyra Iraola: ¿un sistema agroalimentario localizado en el periurbano? In: *Sistemas agroalimentarios localizados en Argentina,* Velarde, I., Maggio, A. & Otero, J. (eds.), pp. 102-121. Instituto Nacional de Tecnología Agropecuaria, Buenos Aires, ISBN 978-950-34-0493-5.

Pochettino, M. L. (2010). Huertos periurbanos como aporte a la diversidad agrícola, Provincia de Buenos Aires, Argentina. In: *Tradiciones y Transformaciones en Etnobotánica*, Pochettino, M. L., Ladio A. H. & Arenas, P. M. (eds.), pp. 186-192. CYTED-RISAPRET, San Salvador de Jujuy, ISBN 978-84-96023-95-6.

Pochettino, M. L. & Lema, V. (2008). La variable tiempo en la caracterización del conocimiento botánico tradicional. *Darwiniana* vol. 46, No. 2, pp. 227-239, ISSN 0011-6793.

Pochettino, M. L., Souilla, L. & Turco, E. (2006). Adaptación a nuevas condiciones sociales y económicas entre los viejos "quinteros" del Parque Pereyra Iraola (Buenos Aires). *VIII Congr. Antropol. Social, Simposio*, Salta (CD).

Pochettino, M. L., Puentes, J. P., Buet Costantino, F., Arenas, P. M., Ulibarri, E. A. & Hurrell, J. A. (2011). Functional Foods and Nutraceuticals in a Market of Bolivian Inmigrants in Buenos Aires (Argentina). *Evidence-Based Complementary and Alternative Medicine*, Vol. 2012 (in press), ISSN 1741-427X.

Quesada, M. (2006). El diseño de las redes de riego y las escalas sociales de la producción agrícola en el 1er. milenio DC (Tebenquiche Chico, Puna de Atacama). *Estudios atacameños* Vol. 31, pp. 31-46, ISSN 0716-0925.

Rodríguez, M. F. & Aschero, C. (2007). Confección de cordeles en la Puna septentrional y meridional argentina. Movilidad e interacciones socioeconómicas. In: *Paleoetnobotánica del Cono Sur: estudios de caso y propuestas metodológicas*, Marconetto, B., Babot, P. & Oliszewsky, N. (eds.), pp. 11-24. Museo de Antropología, Universidad Nacional de Córdoba, ISBN 978-987-1110-60-5.

Sanucci, L. (1972). Berisso, un reflejo de la evolución Argentina. Municipalidad Berisso, Berisso.

Tarragó, M. (1980). El proceso de agriculturización del Noroeste argentino, zona Valliserrana y sus relaciones con zonas vecinas. *Actas V Congr. Nac. Arqueol. Argent.*, pp. 181-217. Facultad de Filosofía, Humanidades y Artes, Universidad Nacional de San Juan.

Tarragó, M. N. (ed.) (2000). *Los pueblos originarios y la conquista. Nueva Historia Argentina.* Vol. 1, Ed. Sudamericana, Buenos Aires, ISBN 9500717921

Turco, E., Souilla, L. & Pochettino, M. L. (2006). Relación entre saberes y prácticas culinarios con la conservación de la agrobiodiversidad. Estudio etnobotánico en el Parque Pereyra Iraola (Buenos Aires, Argentina). *VII Congr. Latinoamer. Sociol. Rural*. 20-24 de noviembre, Quito (CD).

Velarde, I., Voget, C., Avila, G., Loviso, C., Orosco, E., Sepúlveda, C. & Artaza, S. (2008). Influencia de la calidad en el consumo de productos patrimoniales: el caso del sistema agroalimentario del vino de la costa de Berisso. In: *Sistemas agroalimentarios localizados en Argentina*, Velarde, I., Maggio, A. & Otero, J. (eds.), pp. 31-66. Instituto Nacional de Tecnología Agropecuaria, Buenos Aires, ISBN 978-950-34-0493-5..

Vogl, C. R., Vogl-Lukasser, B. & Caballero, J. (2002). Homegardens of Maya migrants in the Palenque District (Chiapas/Mexico). Implications for sustainable rural development. In: *Ethnobiology and Biocultural Diversity*, Stepp, J. R., Wyndham, F. S. & Zarger, R. K. (eds.), pp. 631-647. University of Georgia Press, Athens, ISBN 0-8203-2349-7

Vogl, C. R., Vogl-Lukasser, B. & Puri, R. (2004). Tools and Methods for data collection in ethnobotanical studies of homegardens. *Field Methodes* Vol. 16, No. 3, pp. 285-306, ISSN1525-822X.

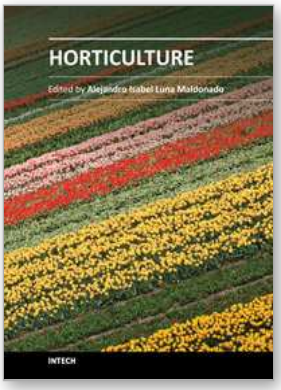
Vogl-Lukasser, B., Vogl, C. R. & Bolhàr-Nordenkampf, H. (2002). Homegarden composition on small peasant farms in the Alpine regions of Eastern Tyrol (Austria) and their role in sustainable rural development. In: *Ethnobiology and Biocultural Diversity*, Stepp, J. R., Wyndham, F. S. & Zarger, R. K. (eds.), pp. 648-658. University of Georgia Press, Athens, ISBN 0-8203-2349-7.

Wagner, G. (2002). Why plants have meanings? In: *Ethnobiology and Biocultural Diversity*, Stepp, J. R., Wyndham, F. S. & Zarger, R. K. (eds.), pp. 659-667. University of Georgia Press, Athens, ISBN 0-8203-2349-7

Watson, J. W. & Eyzaguirre, P. B. (eds.). (2002). *Home gardens and in situ conservation of plant genetic resources in farming systems.* International Plant Genetic Resources Institute, Rome, ISBN 978-9290435174.

Yacobaccio, H. (2007). Complejidad social, especialización y domesticación de camélidos en cazadores recolectores Surandinos. In: *Sociedades precolombinas surandinas: temporalidad, interacción y dinámica cultural del NOA en el ámbito de los Andes centro-sur*, Williams, V., Ventura. B., Callegari. A. & Yacobaccio, H. (eds.) pp. 203-220. Buschi, Buenos Aires, ISBN 9789870532828.

Zardini, E. M. & Pochettino, M. L. (1984). Resultados de un viaje etnobotánico al norte de Salta (Argentina) *IDIA,* Vol. sep.-dic. 1983, pp. 108-121, ISSN 0018-9081.



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This book is about the novel aspects and future trends of the horticulture. The topics covered by this book are the effect of the climate and soil characteristics on the nitrogen balance, influence of fertilizers with prolongation effect, diversity in grapevine gene pools, growth and nutrient uptake for tomato plants, post-harvest quality, chemical composition and antioxidant activity, local botanical knowledge and agrobiodiversity, urban horticulture, use of the humectant agents in protected horticulture as well as post-harvest technologies of fresh horticulture produce. This book is a general reference work for students, professional horticulturalists and readers with interest in the subject.

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