Diversity and conservational status of vascular plants of "Sierra de las Quijadas" National Park (San Luis, Argentina)

Diversidad y estado de conservación de la flora vascular del Parque Nacional "Sierra de las Quijadas" (San Luis, Argentina)

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Abstract

The "Sierra de las Quijadas" National Park, located in the NW of San Luis province, covers 150,252 hectares and preserves a sample of the Chaco-Monte ecotone, with communities of the "Dry Chaco", and "Monte" ecoregions (partly "Monte of plains and plateaus" and partly "Monte of Sierras and bolsons"). It includes mixed forests, shrubby steppes, groves and galleries, rings of halophytes, "pajonales" and rushes. Our goals were to inventory and analyze the vascular flora as well as to identify the endemisms that require greater protection. We recorded 356 species distributed in 208 genera of 58 plant families. Eight taxa are new records for the native vascular flora of the province of San Luis. While 120 taxa are endemic to Argentina, four species turned out to be exclusive of the Park and surroundings: *Atriplex quixadensis* (Chenopodiaceae), *Senecio hualtaranensis* (Asteraceae), *Sclerophylax difulvioi* (Solanaceae) and *Gomphrena colosacana* var. *andersonii* (Amaranthaceae). These taxa suffer varying degrees of threat from population restriction, intense erosion and anthropic action: 3 are critically endangered (CR), other 3 are endangered (EN), 10 are vulnerable (VU), 25 near threatened (NT) and 79 cause minor concern (LC), requiring in many cases immediate and continued protection. Dicotyledons (74%) and Monocotyledons (25%) predominate, plus 2 Monilophyta species and 3 Gymnospermae. The six best represented families are Poaceae, Asteraceae, Fabaceae, Solanaceae, Verbenaceae and Bromeliaceae, which account for 56% of the species. Phanerophytes and Hemicryptophytes life-forms reach 24% each, followed by Chamaephytes (22%) and Therophytes (16%). This reveals a remarkable adaptation of the flora to the long dry season.

Keywords
Argentina • Life-forms • National parks • Plant conservation • San Luis • Sierra de las Quijadas • Vascular flora

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Resumen

El Parque Nacional Sierra de las Quijadas está ubicado en el NW de la provincia de San Luis. Cubre 150.252 ha y preserva una muestra del ecotono Chaco-Monte, con comunidades de las ecorregiones "Chaco Seco" y "Monte" (en parte "Monte de llanuras y mesetas" y en parte "Monte de Sierras y bolsones"). Comprende bosques mixtos, estepas arbustivas, bosquecillos y galerías, "anillos" de halófitas y pajonales y juncales. El objetivo fue inventariar y analizar la flora vascular e identificar los endemismos que requieren mayor protección. Se registraron 356 especies distribuidas en 208 géneros de 58 familias. Ocho taxones específicos e infraespecíficos son nuevos registros para la flora vascular nativa de la provincia de San Luis. De los 120 taxones endémicos de Argentina presentes en el Parque, cuatro resultan endemismos exclusivos: *Atriplex quixadensis* (Chenopodiaceae), *Senecio hualtaranensis* (Asteraceae), *Sclerophylax difulvioi* (Solanaceae) y *Gomphrena colosacana* var. *andersonii* (Amaranthaceae). Estos taxones sufren diverso grado de amenaza por la restricción poblacional, la intensa erosión y la acción antrópica: 3 están en peligro crítico (CR), 3 en peligro (EN), 10 son vulnerables (VU), 25 casi amenazadas (NT) y 79 causan preocupación menor (LC), requiriendo en muchos casos protección inmediata y continuada. En la flora del PNSQ predominan las Dicotiledóneas (74%) y Monocotiledóneas (25%), más 2 especies de Monilófitas y 3 de Gimnospermas. Las seis familias mejor representadas son Poaceae, Asteraceae, Fabaceae, Solanaceae, Verbenaceae y Bromeliaceae, que reúnen el 56% de las especies. Las bioformas fanerófitos y hemicriptófitos incluyen 24% de las especies cada una, seguidas de caméfitos (22%) y terófitos (16%). Esto demuestra una notoria adaptación de la flora a la prolongada estación seca.

Palabras clave
Argentina • Bioformas • Conservación • Flora vascular • Parques nacionales • San Luis • Sierra de las Quijadas

Introduction

The "Sierra de las Quijadas" National Park (hereinafter, SQNP) is a natural and landscape reserve that protects the current flora and fauna, representative of the Biogeographical Provinces "Chaqueña" and "Monte" and their ecotones (in the sense of Cabrera, 1976). In addition, important paleontological and archaeological sites are also included in the framework of shocking geoforms for their scenic beauty and genetic complexity (figure 1).

The goals of this work were to inventory and analyze the diversity of vascular flora as well as to identify the endemisms that require greater protection.

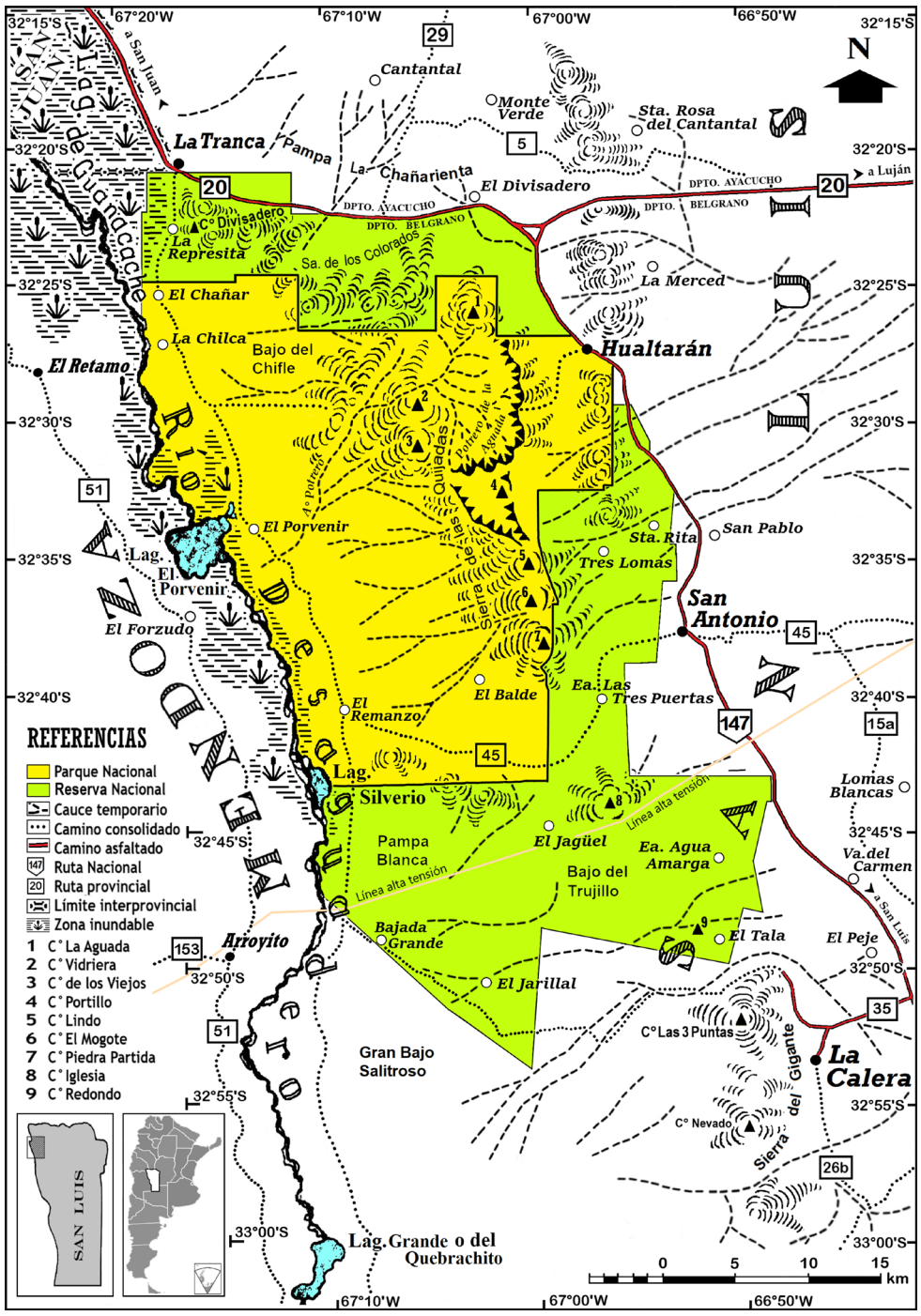
Photo L. A. Del Vitto. / Foto L. A. Del Vitto.

Figure 1. The "Potrero de la Aguada" basin, seen from their eastern edge; in the background, the steep western edge.
Figura 1. La cuenca del "Potrero de la Aguada", vista desde el borde oriental; al fondo, el escarpado borde occidental.

1. Location and extension

It is located at the NW end of the province of San Luis (Dpt. Ayacucho and Belgrano) and integrates the Federal System of Protected Areas (65). It extends between approx. 32° 21´ and 32° 55´ S and 66° 52´ and 67° 17´ W (figure 2) and covers 150,252 ha (approximately 2% of the total area of San Luis province and 35% of its protected areas). Of these, 73,785 ha correspond to the National Park (Category II, APN), surrounded in its limits N, S and E by a buffer zone of 76,467 ha, administered as a National Reserve (Category VI, APN; 10). The Park administration has been established in Hualtarán, a place located 116 km NNW from the city of San Luis.

Ref.: Parque Nacional: National Park.- Reserva Nacional: National Reserve.- Cauce temporario: Temporary stream.- Camino consolidado: unpaved road.- Camino asfaltado: paved road.- Ruta nacional: Major road.- Ruta provincial: State road.- Línea alta tensión: High voltaje line.- Límite interprovincial: interstate limit.- Zona inundable: Flood zone.- C°: Cerro / Hill.- Ea.: Estancia / Ranch.- Sa.: Sierra.- Dpto.: Departamento / Department.- Lag.: Laguna / Lagoon.- Sta.: Santa.- Va.: Villa / Village



(Drawn by L. A. Del Vitto. / Dibujado por L. A. Del Vitto.)

Figure 2. Map of the "Sierra de las Quijadas" National Park and Reserve and surroundings.

Figure 2. Mapa del Parque Nacional y Reserva "Sierra de las Quijadas" y alrededores.

2. Background

The preservation of the area was proposed by geologist and paleontologist José Román Guiñazú (1897-1991) (29, 48). Based on the project drawn up by the National Parks Administration (3, 38), Law N° 24015/1991 was approved, which gave it the status of National Park (6). Later the homologation of the management plan and zoning took place (4, 43, 44), based on numerous studies. Regarding the flora, the studies were developed from the creation of the Park itself (19, 20, 21, 22, 23, 49, 50), but did not reach the overall vision that is expected to be achieved through this work.

Ramsar Site N° 1012 "Lagoons of Guanacache, Desaguadero and El Bebedero" includes entirely the SQNP (17, 53, 66, 67, 68). This lacunar area and its sub-basins cover 962,370 ha. An environmental restoration program for the Lagoons of Guanacache was initiated in 2012 by the provinces of Nuevo Cuyo (Mendoza, San Juan, San Luis and La Rioja). Azudes (levee) were built to retain the water that the Desaguadero river drains permanently from the lagoons. Attempts are made to reinstate stable settlers (especially former inhabitants and descendants of "huarpes" people) who develop livelihoods in harmony with Nature at the Ramsar Site and in the Reserve that partially surrounds the Park, preserving the core area of the National Park.

3. Preserving objects

The SQNP protects the specific and ecosystem diversity of the ecotone among the biogeographical provinces "Monte" and "Chaqueña", they keep the ecologic connectivity in the environment and preserve the drainage network at the Western slope in the Sierra de las Quijadas, which provides flows to the fluvial lacustrine system Desaguadero / Guanacache / Salinas del Bebedero.

In addition, the preservation of the environmental quality and scenic beauty of the public access sectors has been imposed on the Park, especially the area of "Potrero de la Aguada", and the protection of their interesting geological formations, as well as the conservation of the archaeological and cultural heritage of the region.

Four plant species are so far exclusive endemisms of the SQNP and its immediate surroundings: *Atriplex quixadensis* Del Vitto, Múlgura & Petenatti (Chenopodiaceae), *Gomphrena colosacana* Hunz. & Subils var. *andersonii* Subils & Hunz. (Amaranthaceae), *Sclerophylax difulvioi* Del Vitto & Petenatti (Solanaceae) and *Senecio hualtaranensis* Petenatti, Ariza & Del Vitto (Asteraceae) (20, 22, 23, 49) (figure 3).

Photos by the Authors. / Fotos de los Autores.

Ref.: **A**, *Sclerophylax difulvioi*; **B**, *Gomphrena colosacana* var. *andersonii*; **C**, *Atriplex quixadensis*; **D**, *Senecio hualtaranensis*.

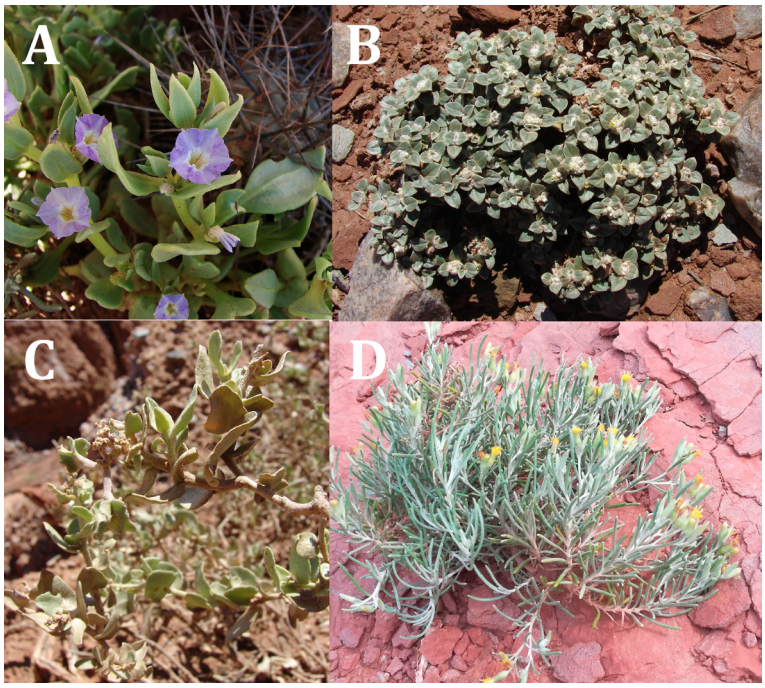


Figure 3. The four endemic plant species, exclusive to the SQNP and its surroundings.

Figure 3. Las cuatro especies vegetales endémicas exclusivas del PNSQ y alrededores.

Also several threatened taxa and regional and Argentine endemisms of flora and fauna are well represented: another 116 species of higher plants (in this work), 6 species of mammals, 13 of birds, 5 of reptiles, one of amphibians and one of fishes (28, 31, 32, 64), which find integral protection in the Park and the Reserve.

Finally, stand the spectacular beauty of a huge natural amphitheater called the "Potrero de la Aguada", an immense depression that extends over 4,000 ha (figure 1, page 216).

4. Physical environment

The area that today occupies the Park and its surroundings constituted a continental Cretaceous sedimentary basin about 120 million years ago (Ma). The Andean orogeny (25 Ma), raised the Western edge forming the actual Sierra de las Quijadas (56). The fluvial and eolic sedimentation, gave rise to the plains and the bottom of the Lagunas de Guanacache.

Three geomorphological units have been recognized in the SQNP:

a) *The bolson of the "Pampa de las Salinas"* (in the E and NE) is and endorheic basin with "bajadas" from the edges of the mountains and central "playas" with extensive "salitrales". The scarce vegetation is reduced to groves or bushes with some phreatophytes in the bajadas, and a steppe of halophytes in the playas, with the typical vegetation rings that obey the saline gradient (57).

b) *The Las Quijadas-Gigante ranges* constitute a massif block of crystalline basement, elevated during the Neogen Andean orogeny. The Sierra de las Quijadas is composed of igneous, sedimentary and metamorphic rocks of various ages (37) with some fossiliferous formations (56). A large erosive depression covers about 4,000 ha in the N of the Sierra: the "Potrero de la Aguada" (27). It constitutes the focal point of the SQNP and shows a spectacular succession of columns, cornices, steps and slopes, sculpted by the network of torrents that converge in the Potrero stream, sporadic tributary of the Desaguadero river (27, 37) (figure 1, page 216). Basin sediments are exposed in almost vertical walls on the western edge of depression; these sediments are formed by reddish-orange to deep red sandstones and fangolite, all of which form an impressive landscape (figure 1, page 216). The eastern edge, in turn, is extremely sinuous, dissected by strong erosion.

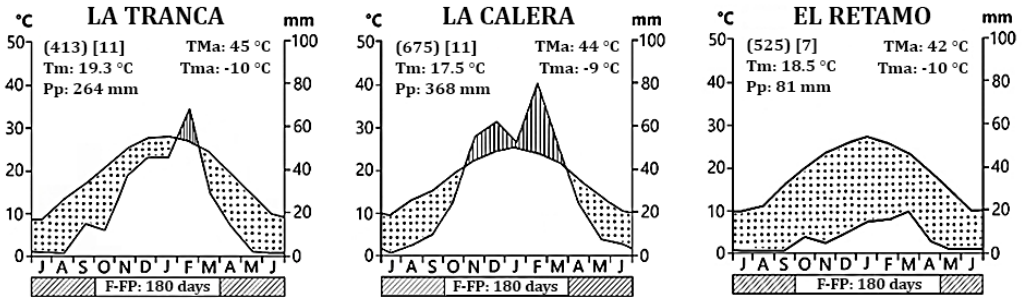
c) *The alluvial girdle of the Desaguadero river* comprises the lowlands to the W of the area (27, 45, 52). The river originates in the Guanacache system lakes and runs from N to S forming a flood plain and a rosary of temporary, shallow lagoons.

The climate of the whole area shows hot summers and mild winters, compatible with an arid mountain climate ("árido serrano"). The records of various meteorological stations allow define it as BWh according the Köppen-Geiger climatic classification. Thermal amplitude is large, both daily and seasonal. Annual average maximum temperature is close to 24°C, and the average minimum temperature is *ca.* 10°C. In the warmest month (January) the average maximum is close to 31°C, while in the coldest month (July) the average minimum only reaches 3°C. The frost-free period (October to April) ranges between 150 and 210 days. The area is located below the 400 mm isohieta, and the rains decrease from the E (*ca.* 360 mm) to the W (no more than 80 mm), in a monsoon regime, since 80-95% of the precipitation takes place between October and April.

The water deficit is continuous throughout the year (El Retamo), although some sites have a short, relatively wet season in summer (La Tranca, La Calera), as shown by the climate diagrams of figure 4 (page 220) (Walter & Lieth's model, 1967), which summarize the climatic conditions of these three localities that circumscribe the SQNP.

The annual average relative humidity is 55%. The prevailing winds correspond to the SW (dry) and NE (with low humidity) quadrants. The only semi-permanent watercourse in the area is the Desaguadero river, whose salinity is increased during the rainy season due to the leaching of adjacent lands. It has been reported that groundwater is not suitable for human or animal consumption (31).

Drawn by L. A. Del Vitto. / Dibujado por L. A. Del Vitto.



Ref.: **°C**: temperature in centigrades / temperatura en centígrados.- **mm**: rainfall, in mm / precipitación, en mm.- **J**,**A**,**S**,**O**,**N**,**D**,**J**,**F**,**M**,**A**,**M**,**J**: months from July to June / meses desde julio a junio.- **Tm**: mean annual temperature / temperatura media anual.- **Pp**: mean annual rainfall / precipitación media anual.- **TMa**: absolute highest temperature / temperatura máxima absoluta.- **Tma**: absolute lowest temperature / temperatura mínima absoluta.- **F-FP**: frost-free period / período libre de heladas.- Dotted area: period of relative drought / Área punteada: estación relativamente seca.- Vertical-striped area: relative humid season / Área con rayas verticales: estación relativamente húmeda.- Oblique-striped bar: months with frosts / Barra con rayas oblicuas: período con heladas.

Figure 4. Climate diagrams of three locations near SQNP**.**

Figura 4. Climogramas de tres localidades cercanas al PNSQ (according / según Walter & Lieth, 1967).

All soils that present in this area are genetically young, sedimentary (47), developed under an aridic and thermal regime (low rainfall and relative high soil temperatures), whereby the orders Entisols and Aridisols predominate (47, 70, 71). Among the first, with little differentiation of horizons, the calcareous torriortents in the mountain range, and the typic torriortents in the piedmont plain are presented. The aridisols have little organic matter and they are bit leached, characteristic of semideserts and deserts, here they are represented by the paleorthids from the arid piedmont plain, and the calciorthids and salorthids corresponding to the salt depressions (47). In addition to shallow lithosols on the slopes or mountain peaks, in the profile explored by the roots (0-3 m deep) loessic sediments are found (to the E of the line of sierras), as well as alluvial (between the Western slope of the mountains and the Desaguadero plain) and fluvio-lacustrine ones (on the plain of the Desaguadero). Finally, around the lagoons along the river, lacustrine sediments are found. Its physicochemical characteristics are decisive for the vegetation (46).

5. Paleontology

A large number of fossils have been exhumed in the SQNP area and its surroundings (a lot of them novel), mainly in sediments of the Lower Cretaceous (5). In relation to the macroflora highlights leaves, flowers, pollen and seeds of Angiosperms and impressions of primitive vascular plants and of Bryophytes, as well as palynomorphs (spores and some pollen). Other important fossils are bony fish (Semionotides), the pterosaur *Pterodaustro guinazui* Bonaparte (up to 3 m large wingspan, unique for its peculiar cranial and dental shape that suggests a lacustrine diet), and numerous arthropods, particularly insects and crustaceans; also bivalve, worms, and traces like dinosaur ichnites (5, 8, 36, 37, 55).

6. Archaeology

Some archeological sites document the establishment of ancient settlers in the SQNP area. Notable are the clay, semi-buried oven, almost 1 m in diameter, with an age close to 1,000 years, of which its functionality is still discussed; it is speculated that they were used to cook food or small pieces of pottery (39, 43). A few rock art friezes have been found, too (37).

7. Fauna

The fauna also shows ecotonal characteristics, with typical species of Chacoan, Andean and Patagonian biogeographic regions. The "collared peccary", *Pecari tajacu* (Linnaeus) and the "Chacoan mara", *Dolichotis salinicola* Burmeister represent the former; meanwhile, the "Andean condor", *Vultur gryphus* Linnaeus, denote the presence of Andean region; finally, the Patagonian region is represented above all by the "South American gray fox", *Lycalopex gymnocercus* (Fischer) and the "Patagonian mara", *Dolichotis patagonum* (Zimmermann), as

well as other representatives of various zoological groups (22). Indeed, other conspicuous inhabitants are the "guanaco", *Lama guanicoe* (Müller); the "pink fairy armadillo" or "pichiciego", *Chlamyphorus truncatus* Harlan; the "Argentine boa", *Boa constrictor occidentalis* Philippi; and the "Chaco tortoise", *Chelonoidis chilensis* Gray. As for the birdlife, the SQNP represents a key place for the protection of the "crowned solitary eagle" or "águila coronada", *Buteogallus coronatus* (Vieillot), as well as another species with relictual populations (30). In relation with the herpetofauna, 25 species have been recorded (28, 35), including the "Chaco sand lizard" or "chelco", *Liolaemus chacoensis* Shreve, and the "Mendoza four-eyed frog" or "desert frog", *Pleurodema nebulosum* (Burmeister). Many of these species constitute small populations, thus requiring a high level of protection. On the other hand, two species of exotic invaders mammals are an additional pressure factor for the environment: the "wild ass" (feral donkeys, *Equus asinus* Linnaeus), and the "European wild boar", *Sus scrofa scrofa* Linnaeus (26).

Materials and methods

The plant materials studied for this work reach 739 *exsiccata*, mostly preserved in the Herbarium, National University of San Luis (acronym: UNSL). They were collected by classical botanical methods (prospecting, samples selection, pressing, drying, mounting and preservation) during 1989-2018 in the area of the SQNP and surroundings (figure 2, page 217), in the course of 28 collection trips from spring to autumn. In a few cases the presence of a plant was recorded by a live collection (mainly cacti) or field observation properly documented. Other specimens preserved in Argentine herbaria (CORD, CTES, MERL, SI, VMSL) were also studied, while the data bank "Documenta Florae Australis"© (Instituto de Botánica Darwinion, Buenos Aires) was checked, too.

In general, the nomeclature was updated following the criteria supported by *Flora Argentina* (2), *Angiosperm Phylogeny Group IV* (15, 69) as well as recent taxonomic reviews.

The taxa were sorted by supra-specific groups, and within each family, in alphabetical order of genera. Habit and life-form were evaluated for each case (9, 42, 54), as well as the origin and status in the country, mentioning a voucher specimen from the area under study for each taxon.

For the exclusive or regional endemisms present in the Park, the degree of threat or conservation status is indicated, according to the criteria formulated in PlanEAr (51) and in IUCN Guidelines (7, 33); when the species has not been previously included in those assessments, a regional rating is proposed (24).

Results and discussion

1. Observations on the flora and vegetation

The area is a meeting point for the floristic streams of "Chaco" and "Monte", which form here an ecotone with facies in which elements of one or the other predominate. The biogeographical province of the "Monte" is represented by its sparse xerophytic low forests and the shrub formations dominated by resinous and / or spinescent plants, while the "Chaqueño Serrano District" of the Chacoan biogeographical province shows its typical mountain and pedemontane forests, although low and impoverished in species at this latitude (13, 14, 40, 58, 61).

The plant communities in general correspond to the "Dry Chaco" and "Monte" ecoregions (11). It is estimated that in the core area, the first extends over 59,680 ha, while the latter does so over 14,110 ha, adding the 73,785 ha referred to above (64). The predominant vegetation units can be defined following Oyarzábal *et al.* (2018) as xerophyte forests with "quebracho blanco" (*Aspidosperma quebracho-blanco* Schltdl.), in transition towards steppe formations of Zygophyllaceae and halophytes. From a territorial approach, there are differences in the distribution of the ecoregions of the "Monte" in the Park itself, in relation of the published cartography (41); indeed, the presence of the mountains and endorheic basins stretches towards the S the limit of the "Monte of sierras and bolsons", while the district called "Monte of plains and plateaus" extends by the W and SE of the Park.

Considering the specific composition, in some sectors it can be affirmed that these are communities of the "Monte" enriched with "Chaco" elements (1, 13). Regarding ecosystem complexes, it identifies the plains and interserran valleys, the endorheic bolsons and the saline areas, in addition to the strictly mountain environment, which broadly matches with the descriptions of Morello *et al.* (2012) and Oyarzábal *et al.* (2018).

Woodlands

The predominant formation is an open, tri-stratified, mixed forest, dominated by "quebracho blanco" (*Aspidosperma quebracho-blanco*) and "algarrobos" (*Prosopis* spp.), whose tops rarely touch. This association is typical of the "Chaco" / "Monte" ecotone (1, 12). The "quebracho blanco", a Chacoan species, reaches here 6-8 m high and stands out on the canopy of the "algarrobos" (especially *P. flexuosa* DC. f. *flexuosa*, typical of Monte), which is more continuous but lower. The environment is notoriously xeric, and therefore species of the "Monte" dominate in the shrub stratum next to numerous Cacti (*Cereus aethiops* Haw., *Opuntia sulphurea* Gillies ex Salm-Dyck and some species of *Tephrocactus*) and a "cháguar", the bromeliad *Deinacanthon urbanianum* (Mez) Mez, whose fruits are a precious resource for wild fauna. They are joined by various grasses with a spring-summer cycle, but which have little coverage. Trees and shrubs support a large amount of non-parasitic, epiphytic bromeliads, the "claveles del aire" (*Tillandsia* spp.), which is the genus with the highest specific richness in the SQNP.

Galleries

In some hills, the gorges show riparian vegetation of shrubs or armed little trees, especially "espinillos" (*Vachellia* spp., *Parasenegalia* spp.) and "algarrobos" (*Prosopis* spp.), which often constitute galleries over the course of temporary streams. In the drier interfluves, the same species appear but shrubby, dominated by low sized specimens of "quebracho blanco".

"Jarillales" and "retamales"

In the Eastern foothills of the Sierra de las Quijadas there are sectors with gentle slopes and clay-matrix soil, in which resinous evergreen bushes dominate, the "jarillas" (especially *Larrea cuneifolia* Cav.), while in flat and salinized sectors there is a "retamal" almost pure constituted by plants of *Bulnesia retama* (Gillies ex Hook. & Arn.) Griseb., that here do not exceed one meter of height.

Swamps ("cenagales")

In the contact area between the foothills and the plain there are swamps dominated by "chilcas" and "chilquillas", *Baccharis salicifolia* (Ruiz & Pav.) Pers. and *B. glutinosa* Pers., accompanied by "pájaro bobo", *Tessaria absinthioides* (Hook. & Arn.) DC., and the bush-like "bejuco", *Austrobrickellia patens* (D. Don ex Hook. & Arn.) R.M. King & H. Rob., along with a few other swamp species.

"Huayquerías" or bad-lands

The intense erosive processes that take place on the slopes of the Sierras have created a typical landscape of "huayquerías" (bad-lands). There the plant cover is very poor and stands out for its resistance to drought, soil salinization and erosive dynamics. It consists mostly of isolated specimens of "zampas" (especially *Atriplex lithophila* A. Soriano, accompanied by *A. argentina* Speg., *A. spegazzinii* A. Soriano ex Múlgura, *A. quixadensis*), cushions of "rosetilla" (*Gomphrena colosacana* var. *andersonii*, an exclusive endemic to this Sierra and the neighboring Sierra del Gigante), as well as "verdolagas", *Halophytum ameghinoi* (Speg.) Speg. and *Sclerophylax* spp., and a low, spinescent shrub, the "cuerno de cabra", *Adesmia trijuga* Gillies ex Hook. & Arn. A lot of species of "claveles del aire" (*Tillandsia* spp.) take advantage of the few phorophytes that offer them the "huayquerías". A curious Fabaceous bush with vigorous spinescent branches, called "chica", *Ramorinoa girolae* Speg., inhabits natural "balcony" levels on the edges of the "Potrero de la Aguada", reaching up to 3 m high; these are robust specimens about to fall due to the collapse of the substrate, which show their partially denuded roots. Three species, hitherto unique to the Sierra de las Quijadas, have been described from this environment in the course of previous studies: "zampilla" (*Atriplex quixadensis*), "romerillo blanco" (*Senecio hualtaranensis*) and a perennial "verdolaga" (*Sclerophylax difulvioi*) (20, 23, 49).

Scarps and balconies of the "Potrero de la Aguada"

The steep edges of this immense depression, and especially the surface of the slopes and landings or bleachers that follow each other with almost no continuity solution in the walls rising on both sides of the depression (figure 1, page 216), show a steppe constituted by shrubs and subshrubs that resist the constant soil erosion. There are notorious two species of "cháguar" arranged in semilunar structures, the bromeliads *Dyckia velascana* Mez and *Deuterocohnia longipetala* (Baker) Mez, which form strong bushes provided with fleshy and spinescent leaves. Close to them, grow some Cacti, grasses and other small plants.

Bottom of the Valley of "Potrero de la Aguada"

The interfluves of the bottom of this depression are occupied by brushwoods in which spinescent species such as "garabato", *Senegalia gilliesii* (Steud.) Seigler & Ebinger; "manca-potrillo", *Plectrocarpa tetracantha* Gillies ex Hook. & Arn., and the Chacoan element called "prendedor", *Mimosa ephedroides* (Gillies ex Hook. & Arn.) Benth., prevail. The streams are bordered by a gallery of bushes, especially *Tessaria dodoneifolia* (Hook. & Arn.) Cabrera, called "chilca dulce".

Eastern plain towards the Desaguadero river

A steppe of halophilic shrubs on soils with a visible salt crust appears between the course of the Desaguadero river and the mountain range. In some areas dominate "zampas" (*Atriplex* spp.) accompanied by "palo azul", *Cyclolepis genistoides* Gillies ex D. Don; "piquillín de la víbora", *Lycium tenuispinosum* Miers; "retortuño", *Prosopis strombulifera* (Lam.) Benth., and several grasses, which mostly with a spring-summer cycle. Occasionally in this community appear "chañares" (*Geoffroea decorticans*) of small size, and intricate shrubs such as "matorro", *Prosopis sericantha* Gill. ex. Hook. & Arn. To the edges (less saline) "jarillas", *Larrea cuneifolia* Cav., *L. divaricata* Cav., and "ala de loro", *Monttea aphylla* (Miers) Benth. & Hook., predominate.

Salinized depressions and bolsons

In places with higher salinity, the dominant shrubs are exclusively Chenopodiaceae, such as "vidriera", *Suaeda divaricata* Moq.; "jumes", *Allenrolfea vaginata* (Griseb.) Kuntze and *A. patagonica* (Moq.) Kuntze; "vinagrillo", *Sarcocornia ambigua* (Michx.) M.A. Alonso & M.B. Crespo; and "apén", *Heterostachys ritteriana* (Moq.) Ung.-Sternb., often in concentric rings in the order indicated, that obey the increasing saline gradient.

Dunes

Towards the interior of the Western plain, there are dunes covered totally or partially with plants resistant to burial, either by means of strong rhizomes or by emitting adventitious roots. Outstanding are the "junquillares" of *Sporobolus rigens* (Trin.) E. Desv., often accompanied by "tupe", *Panicum urvilleanum* Kunth, and the almost pure "blanquillales" which cover large extensions, formed by *Hyalis argentea* D. Don ex Hook. & Arn., called "olivillo" or "blanquilla" because its white-silvered stems and leaves. They are pioneer plants that fix the dunes, allowing the subsequent ecesis of annual and perennial herbs, and then facilitate the settlement of shrubs like the "algarrobo de guanaco", *Prosopis argentina* Burkart.

Desaguadero flood plain

This plain, which at certain points is extensive and of very little slope, occupies the Western part of the Park. It is prodigal in annual and perennial herbs, particularly halophytes, while on the edges (called "albardones", which downstream form true ravines up to several meters high) there are copses of "algarrobos" (especially *Prosopis flexuosa* f. *flexuosa*); these trees demarcate current watercourses and also paleochannels for their phreatophytic behavior (59, 72). Sometimes, they are accompanied by the "quebracho blanco". The shrubs and trees mentioned also border the small streams that lead to the river, sometimes becoming a gallery.

Salix humboldtiana Willd., the "sauce criollo" or "red willow", must have dominated the riparian environment of the Desaguadero basin in past times; today, due to its water high requirements in summer, it is only found forming isolated copses on the banks of the San Juan river.

Extensive hydrophilic associations occur in the fluvian-lacustrine plain of Desaguadero and in the temporary lagoons of the Guanacache complex. They are especially "juncales" y "totorales" dominated by *Schoenoplectus californicus* (C.A. Meyer) Soják, called "hunco" or "totora", a tall Cyperaceae that constituted the essential raw material to manufacture rafts by the aborigines (60, 74) and *Typha domingensis* Pers. and *T. subulata* Crespo & R.L. Pérez-Moreau, which develop whith free water and even at depths of 1.5 m. Can also see here "carrizales" of *Phragmites australis* (Cav.) Trin. ex Steud., sometimes in areas with saturated soil and at times with free water. Other "juncales", this time from *Juncus balticus* Willd. and *J. acutus* L. (Juncaceae) prefer waterlogged soils. In the shallow and still waters of the shores the "berrillo", *Bacopa monnieri* (L.) Wettst., and other herbaceous dicots and grasses are frequent. The margins of the watercourses and some reservoirs inside the bed, subject to periodic flows, are frequently marked by *Cortaderia selloana* (Schult. & Schult. *f.*) Asch. & Graebn. ("Pampa grass" or "cortadera"), a vigorous grass that reaches up to 2 m high.

In flat and flooded places, with highly saline soil, there are "patches" dominated by grasses of very short lawn, such as "pasto salado", *Distichlis spicata* (L.) Greene; "pasto tul", *Muhlenbergia asperifolia* (Nees & Meyen ex Trin.) Parodi; and "chépica", *Cynodon dactylon* (L.) Pers. In other places there are colonies of "chilca", *Baccharis salicifolia*, and "chilquilla", *B. glutinosa*, and other marsh plants that at least support periodic water stagnations, such as the "pájaro bobo", *Tessaria absinthioides* (Hook. & Arn.) DC. An adventitious shrub or little tree, the "tamarisk", *Tamarix ramosissima* Ledeb. is very well adapted to this environment with variable humidity and high salinity; it reaches here up to 4 m high and often occurs in almost pure populations, especially in the banks of the riverbed.

Peridomestic plants

Several species appear at the edge of routes, and others constitute the peridomestic vegetation, including native ones that are tolerated near dwellings, as "algarrobos", "quebracho blanco", "molles morados" (*Schinus* spp.) and "chañar", as well as a few cultivated plants, especially "visco", *Parasenegalia visco* (Lorentz ex Griseb.) Seigler & Ebinger, and "Siberian elm", *Ulmus pumila* L. In relation to "aguaribay" or "Peruvian peppertree", *Schinus areira* L., it is found here near the Southern limit of its wild populations. In the case of the "tamarisk" or "salty cedar" already mentioned, it was surely naturalized in the SQNP since colonial times, after invading the watersheds of the main tributaries of the Desaguadero river. Other plants are also weeds, mainly Eurasiatic, such as "wild lettuces", *Lactuca saligna* L., *L. serriola* L.; "sow thistles", *Sonchus asper* (L.) Hill, *S. oleraceus* L.; "thistles", *Cirsium vulgare* (Savi) Ten., *Carduus* spp.; "dandelion", *Taraxacum officinale* F.H. Wigg.; "wild radish", *Raphanus sativus* L.; "Russian thistle", *Salsola kali L.*; "corregüela" or "bindweed", *Convolvulus arvensis* L.; and so on.

Some exotic, anemochorous forage plants, such as "buffel grass", *Cenchrus ciliaris* L., have reached the SQNP, but until now they only appear at the edges of routes in the limits of the Park.

2. On the land use and livestock activity

The NW of San Luis, that is to say almost all of the Departments of Belgrano and Ayacucho, has severe water and soil limitations for the development of agricultural and livestock activities (especially scarce and irregularly distributed rainfall, and high susceptibility to soil erosion) (47, 62), which have accelerated desertification processes (18). In contrast, the Western highlands (particularly the Sierra del Gigante, located south of the SQNP) have been and are nowadays exploited with some intensity by their mining resources.

Until the recent past, logging was intense, reducing forests to their current expression, generally restricted to galleries on watercourses, mountain slopes or deep ravines. Almost the entire region has been classified as a "native forest" (categories I and II, within the meaning of Provincial Law IX-0697-2009), that providing for some degree of protection to the plant and animal diversity and establishing restrictive conditions for the land use (63).

It is probable that cattle farming has been practiced here since the Spanish colonization. The very name "Sierra de las Quijadas" would refer to bones derived from cattle slaughter practiced in the area, and the toponym "Potrero de la Aguada" perhaps it refers to the fact that the area was used by the herders to keep the cattle safe during transit through the old path ("rastrillada") to the NW, which is now national route 147. The area has capacity for cattle breeding and rearing (25) and to a lesser extent for other subsistence activities. Outside the core area of the SQNP, some cattle farms remain, although the APN's

agreed management policy tends to reduce the number of heads and therefore the effects on vegetation and soil.

3. The vascular flora

The vascular flora of the SQNP is represented so far by 356 species (plus 99 infraspecific taxa), corresponding to 208 genera of 58 families (table 1). It comprises 2 species of Monilophyta, 3 of Gymnosperms and the remaining of Angiosperms (88 of Monocotyledoneae and 263 of Dicotyledoneae).

The 58 families of vascular plants of the SQNP represent approximately 24% of the families present in the Argentinian flora. Likewise, the 208 genera found here comprise 10.6% of the genera of the whole country, while the 356 species of the SQNP represent 3.6% of the total species of Argentina. These percentages have been calculated based on the estimates of Zuloaga *et al.* (1999) and Del Vitto *et al.* (2011).

Table 1. Number of genera, species and infraspecific taxa per family.

Tabla 1. Número de géneros, especies y taxones infraespecíficos por familia.

Ref.: (**1**): alternative name / nombre alternativo.

Family	Genera	Species	Infraspecific taxa
Poaceae (Gramineae[1])	34	58	18
Asteraceae (Compositae[1])	33	49	18
Fabaceae (Leguminosae[1])	17	31	8
Solanaceae	7	24	4
Verbenaceae	10	21	5
Bromeliaceae	4	18	6
Chenopodiaceae	8	16	3
Cactaceae	7	13	4
Malvaceae	8	12	2
Amaranthaceae	3	11	7
Zygophyllaceae	6	7	-
Euphorbiaceae	4	7	4
Boraginaceae	3	6	1
Convolvulaceae	4	5	1
Apocynaceae	4	5	-
Nyctaginaceae	4	5	-
Portulacaceae	1	5	1
18 families with 4, 3 or 2 species	28	40	9
23 families with 1 genus / 1 species	23	23	8
Total	**208**	**356**	**99**

Ten families are represented by more than 10 species each, adding 253 species, which constitutes just over two thirds of the local flora (71%). Of these, Poaceae represent 16.3% of the total, Asteraceae constitute *ca*. 13.8%, Fabaceae 8.7%, Solanaceae 6.7%, Verbenaceae 5.9%, Bromeliaceae 5%, Chenopodiaceae 4.5%, and Cactaceae, Malvaceae and Amaranthaceae reach 3.6 to 3.1% each. On his part, Zygophyllaceae, Euphorbiaceae and Boraginaceae contribute 2 to 1.7% each, while Convolvulaceae, Apocynaceae, Nyctaginaceae and Portulacaceae reach only 1.4% each of the species of the Park. The 18 families that include 2 to 4 species make up 11.2%, and the 23 families represented by a single species reach 6.5% of the total species.

The diversity within each genus is not high, something to be expected in a warm and dry area at these latitudes (table 2, page 226). Only four of them reach or exceeds ten species and infraspecific taxa (*Tillandsia* with 19, *Gomphrena* and *Prosopis* 13 each, and *Solanum* with 10). The following 15 genera count between 9 and 5 species and infraspecific taxa each, while the rest of the genera comprise 4 taxa or less. It is notable that most genera (141, *i.e.* 68% of them) are represented by only one species.

Table 2. Number of specific and infraspecific taxa per Genus.
Tabla 2. Número de taxones específicos e infraespecíficos por género.

Genus (Family)	Species	Infraspecific taxa
Tillandsia L. (Bromeliaceae)	14	5
Solanum L. (Solanaceae)	9	1
Prosopis L. (Fabaceae)	8	5
Gomphrena L. (Amaranthaceae)	6	7
Atriplex L. (Chenopodiaceae)	7	1
Baccharis L. (Asteraceae)	6	-
Senecio L. (Asteraceae)	5	4
Lycium L. (Solanaceae)	6	3
Portulaca L. (Portulacaceae)	5	1
Sporobolus R.Br. (Poaceae)	5	1
Glandularia J.F.Gmel. (Verbenaceae)	5	-
Euphorbia L. (Euphorbiaceae)	4	4
Tephrocactus Lem. (Cactaceae)	4	2
Lantana L. (Verbenaceae)	4	1
Setaria P.Beauv. (Poaceae)	4	1
Chloris Sw. (Poaceae)	3	4
Bidens L. (Asteraceae)	3	3
Aristida L. (Poaceae)	3	2
Leptochloa P.Beauv. (Poaceae)	3	2
2 genera with 4 species each	8	-
11 genera with 3 species each	33	5
35 genera with 2 species each	70	11
141 genera with 1 species each	141	36
Total	**356**	**99**

The four endemic species (table 3), hitherto exclusive to these mountains are as follows: *Atriplex quixadensis*, *Sclerophylax difulvioi*, *Senecio hualtaranensis* and *Gomphrena colosacana* var. *andersonii*. Their habitat is restricted to the "huayquerías" of the Sierra de las Quijadas, and the slopes and landings of the edges of the "Potrero de la Aguada", where they support both intense erosion and drought, as well as the compaction and high salinity of the soil. On the other hand, *G. colosacana* var. *andersonii* is a small cushion that also appears, although to a lesser extent, in the neighboring Sierra del Gigante.

Table 3. Endemic taxa, exclusive to the SQNP and surroundings.
Tabla 3. Taxones endémicos, exclusivos del PNSQ y alrededores.

Taxa	Family	Common name	Risk (PlanEAr)	*Status* (IUCN)
Atriplex quixadensis Del Vitto, Múlgura & Petenatti*	Chenopodiaceae	zampilla	4[(1)]; 5[(2)]	CR[(2)]; EN[(3)]
Sclerophylax difulvioi Del Vitto & Petenatti	Solanaceae	verdolaga perenne	5[(1,2)]	CR[(2)]; EN[(3)]
Senecio hualtaranensis Petenatti, Ariza & Del Vitto	Asteraceae	romerillo blanco	5[(1,2)]	CR[(2)]; EN[(3)]
Gomphrena colosacana Hunz. & Subils var. ***andersonii*** Subils & Hunz.	Amaranthaceae	rosetilla	3[(1)]; 4/5[(2)]	VU[(2,3)]

Ref.: * It has recently been cited for the province of San Juan but not to mention herbarium specimen. / Recientemente ha sido mencionado para la provincia de San Juan pero sin la correspondiente documentación de herbario. - **CR**: critically endangered / en peligro crítico. - **EN**: endangered / en peligro. - **VU**: vulnerable. - **(1)**: estimate for the Argentinian territory in / estimación para el territorio argentino en PlanEAr (2015-2019). - **(2)**: regional estimate for this work by authors according to / estimación regional de los autores para este trabajo de acuerdo a / Del Vitto *et al.* (2011). - **(3)**: estimate on certain endemic plants of San Luis province in / estimación para algunos endemismos de la provincia de San Luis en / Ayarragaray *et al.* (2015).

These 4 species represent 40% of the endemic plants exclusive of the territory of San Luis province (7). In turn, the total number of Argentine endemic plants that find protection in the limits of the Park add up 116 species (one third of the total vascular flora of the Park, tables 3, page 226 and 4, page 228-230), which represent approx. 6% of the endemic plants throughout Argentina, according to records provided by Zuloaga *et al.* (1999). This latter proportion can be considered high in relation to the Argentine flora as a whole, and is related to the comparatively high number of endemic genera and species typical of the "Chaco" and "Monte" biogeographical provinces. These include *Halophytum ameghinoi* Speg., a species restricted to the driest sites of the "Argentinian arid diagonal" and the unique species of the country's only endemic botanical family, Halophytaceae.

Tables 3 (page 226) and 4 (page 228-230) also indicate the degree of threat facing each of the endemic species, according to the risk scale developed by PlanEAr (2015-2019) and the criteria of the IUCN (2012), or the assessment of Ayarragaray *et al.* (2015). When the species has not been previously included in these assessments, the authors propose a qualification at regional level.

Many of these endemisms require immediate and continuous protection, since in general they are grouped into small populations of very restricted distribution, located in sites that are currently undergoing severe processes of environmental disturbance, both natural and anthropic.

We consider that all species included in tables 3 (page 226) and 4 (page 228-230) are in some way threatened, in most cases according to the regional application of the IUCN criteria (2012) and to a lesser extent due to their inclusion in the Red Lists of IUCN (2019). Thus, three of them are critically endangered (CR, 2.6% of threatened species preserved in the SQNP), three others are endangered (EN, 2.6%), 10 are vulnerable (VU, 8.6%), 25 are almost threatened (NT, 21.5%) and 79 can be considered of minor concern (LC, with 64.7%).

As for the specific and infraspecific taxa of the Cactaceae Family (17 at all in the SQNP) are listed in Appendix II of the IUCN Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which establishes the aim "to ensure that international trade in specimens of wild animals and plants does not threaten their survival" (16).

About twenty species (approximately 6% of the total flora) are exotic plants, and mostly of them take part of the peridomestic vegetation in the SQNP and surroundings; these values are close to those indicated for the province of San Luis (75). They include 12 adventitious and 5 naturalized species, while the "buffel grass" (*Cenchrus ciliaris* cv.) is considered escaped from cultivation.

As for two tree species (*Parasenegalia visco* and *Schinus areira*), they are grown on farms and villages; when they are abandoned to their fate, they can last for a few years. The relative proximity of the native populations of both species raises doubts about their status as indigenous or cultivated, and explains their adaptation to Park environmental conditions.

4. Life-forms in the SQNP flora

The analysis of the position of the surviving buds of the studied taxa allowed establishing the biological types and subtypes of each one (tables 5-9, page 230-248). According to the relative % corresponding to each one, the spectrum of the vascular flora of the Park was elaborated, which was compared with the Raunkiaer´s "normal" spectrum (54) (figure 5, page 231).

The flora of the SQNP presents almost all biological types and most of the subtypes defined by Raunkiaer (1934) and later authors (9, 42). Phanerophytes, Hemicryptophytes, and Chamaephytes dominate (24.7; 24.6; and 22.3%, respectively). This is directly related to the environmental conditions and the structure of the communities, in which mixed, open and tri-stratified forests prevail on the one hand, dominated by a sclerophyll species (*Aspidosperma quebracho-blanco*) accompanied by deciduous trees (*Prosopis* spp.), shrubs, and both perennial and annual herbaceous plants, with low coverage. On the other hand, there are large areas with shrub steppes, composed mainly of evergreen, resinous nanophanerophytes (*Larrea* spp., *Zuccagnia punctata* Cav.), and halophilic chamaephytes. The therophytes (16%) show the highest degree of adaptation of many species to the severity of the dry season, as well as to the periodicity of flooding in the Desaguadero river basin.

Table 4. Conservational status of Argentinian endemic taxa recorded in the SQNP.
Tabla 4. Estado de conservación de los taxones endémicos de Argentina registrados en el PNSQ.

Taxa	Family	Risk PlanEAr	*Status* (IUCN;CITES; this work)
1. *Acantholippia seriphioides* (A.Gray) Moldenke	Verbenaceae	2(1)	LC(2)
2. *Adesmia cordobensis* Burkart	Fabaceae	3(1)	VU(3)
3. *Adesmia retrofracta* Hook. & Arn.	Fabaceae	3(1)	LC(2)
4. *Adesmia trijuga* Gillies ex Hook. & Arn.	Fabaceae	2(1)	LC(3)
5. *Allenrolfea patagonica* (Moq.) Kuntze	Chenopodiaceae	3(1)	LC(2)
6. *Allenrolfea vaginata* (Griseb.) Kuntze	Chenopodiaceae	3(1)	LC(2)
7. *Aloysia ovatifolia* Moldenke	Verbenaceae	3(1)	LC(2)
8. *Alternanthera suessenguthii* Covas	Amaranthaceae	3(1)	LC(2)
9. *Aristida minutiflora* Caro var. *glabriflora* Caro	Poaceae	3(2)	NT(2)
10. *Aristida minutiflora* Caro var. *minutiflora*	Poaceae	3(1)	LC(2)
11. *Arquita mimosifolia* (Griseb.) E. Gagnon, G.P. Lewis & C.E. Hughes	Fabaceae	2(1)	VU(2)
12. *Asteriscium glaucum* Hieron. & I.H.Wolff	Apiaceae	3(1)	NT(2)
13. *Atriplex argentina* Speg.	Chenopodiaceae	1(1)	LC(2)
14. *Atriplex cordubensis* Gand. & Stuck. subsp. *cordubensis*	Chenopodiaceae	1(1)	LC(2)
15. *Atriplex crenatifolia* Chodat & Wilczek	Chenopodiaceae	2(1)	LC(2)
16. *Atriplex lampa* (Moq.) D.Dietr.	Chenopodiaceae	1(1)	LC(2)
17. *Atriplex lithophila* A.Soriano	Chenopodiaceae	4(1)	NT(2)
18. *Atriplex quixadensis* Del Vitto, Múlgura & Petenatti	Chenopodiaceae	4(1); 5(2)	CR(2); EN(6)
19. *Atriplex spegazzinii* A.Soriano ex Múlgura	Chenopodiaceae	2(1)	LC(2)
20. *Ayenia cordobensis* (Hieron.) Hieron.	Malvaceae	3(1)	LC(2)
21. *Ayenia lingulata* Griseb.	Malvaceae	3(1)	LC(2)
22. *Baccharis melanopotamica* Speg.	Asteraceae	3(1)	LC(2)
23. *Baccharis tenella* Hook. & Arn.	Asteraceae	2(2)	LC(2)
24. *Blepharidachne benthamiana* (Hack. ex Kurtz) Hitchc.	Poaceae	2(1)	NT(2)
25. *Blepharidachne hitchcockii* Lahitte	Poaceae	3(1)	LC(2)
26. *Boerhavia cordobensis* Kuntze	Nyctaginaceae	3(1)	LC(2)
27. *Boerhavia pulchella* Griseb.	Nyctaginaceae	3(1)	LC(2)
28. *Calycera calcitrapa* Griseb.	Calyceraceae	2(2)	LC(2)
29. *Cereus aethiops* Haw.	Cactaceae	3(2)	LC(3);Ap.II(4)
30. *Chuquiraga erinacea* D.Don subsp. *erinacea*	Asteraceae	1(1)	LC(2)
31. *Condalia microphylla* Cav.	Rhamnaceae	1(1)	LC(2)
32. *Cressa nudicaulis* Griseb.	Convolvulaceae	3(1)	LC(2)
33. *Distichlis acerosa* (Griseb.) H.L.Bell & Columbus	Poaceae	1(2)	LC(2)
34. *Ditaxis catamarcensis* (Griseb.) Pax	Euphorbiaceae	2(2)	NT(2)
35. *Dyckia velascana* Mez	Bromeliaceae	3(1)	LC(2)
36. *Echinopsis leucantha* (Gillies ex Salm-Dyck) Walp.	Cactaceae	2(1)	NT(2);Ap.II(4)
37. *Ehretia cortesia* Gottschling	Boraginaceae	3(2)	LC(2)
38. *Erioneuron pilosum* (Buckley) Nash var. *longiaristatum* (Kurtz) Anton	Poaceae	3(2)	LC(2)
39. *Euploca catamarcense* (I.M.Johnst.) M.W.Frohl.	Boraginaceae	2(2)	NT(2)
40. *Euploca mendocina* (Phil.) Diane & Hilger	Boraginaceae	1(2)	LC(2)
41. *Gamochaeta peregrina* (Beauverd) S.E.Freire & Anderb.	Asteraceae	1(1)	LC(2)
42. *Glandularia mendocina* (Phil.) Covas & Schnack	Verbenaceae	3(1)	LC(2)
43. *Glandularia venturii* (Moldenke) Botta	Verbenaceae	3(2)	LC(2)
44. *Gochnatia glutinosa* (D.Don) Hook. & Arn.	Asteraceae	1(1)	LC(2)
45. *Gomphrena colosacana* Hunz. & Subils var. *andersonii* Subils & Hunz.	Amaranthaceae	3(1);4/5(2)	VU(2,6)
46. *Gomphrena mendocina* (Phil.) R.E.Fr. subsp. *mendocina*	Amaranthaceae	4(1)	LC(2)
47. *Gomphrena pulchella* Mart. subsp. *rosea* (Griseb.) Pedersen	Amaranthaceae	2(2)	VU(2)
48. *Gomphrena pulchella* Mart. var. *bonariensis* (Moq.) Pedersen	Amaranthaceae	2(2)	LC(2)
49. *Grahamia bracteata* Hook. & Arn.	Anacampserotaceae	2(1)	LC(2)
50. *Gutierrezia gilliesii* Griseb.	Asteraceae	1(1)	NT(2)

Table 4 (cont.). Conservational status of Argentinian endemic taxa recorded in the SQNP.
Tabla 4 (cont.). Estado de conservación de los taxones endémicos de Argentina registrados en el PNSQ.

Taxa	Family	**Risk** PlanEAr	***Status*** (IUCN;CITES; this work)
51. *Gymnocalycium gibbosum* (Haw.) Pfeiff. ex Mittler	Cactaceae	4(1)	LC(3);Ap.II(4)
52. *Gymnocalycium saglionis* (Cels) Britton & Rose	Cactaceae	3(2)	VU(2);Ap.II(4)
53. *Gymnocalycium schickendantzii* (F.A.C.Weber) Britton & Rose var. *schickendantzii*	Cactaceae	3(1)	LC(2);Ap.II(4)
54. *Habranthus jamesonii* (Baker) Ravenna	Amaryllidaceae	2(1)	LC(2)
55. *Halophytum ameghinoi* (Speg.) Speg.	Halophytaceae	3(1)	NT(2)
56. *Hyalis argentea* D.Don ex Hook. & Arn. var. *argentea*	Asteraceae	1(1)	LC(2)
57. *Ibicella parodii* Abbiatti	Martyniaceae	3(1)	LC(2)
58. Junellia hookeriana (Covas & Schnack) N.O´Leary & P.Peralta var. hookeriana	Verbenaceae	1(2)	LC(2)
59. *Justicia hunzikeri* Ariza	Acanthaceae	3(1)	NT(2)
60. *Lantana xenica* Moldenke	Verbenaceae	3(2)	LC(2)
61. *Larrea cuneifolia* Cav.	Zygophyllaceae	1(1)	LC(2)
62. *Lippia salsa* Griseb.	Verbenaceae	2(1)	NT(2)
63. *Lycium infaustum* Miers	Solanaceae	2(1)	LC(2)
64. *Lycium gilliesianum* Miers	Solanaceae	2(1)	LC(2)
65. *Mimosa ephedroides* (Gillies ex Hook. & Arn.) Benth.	Fabaceae	3(1)	NT(2)
66. *Monnina lorentziana* Chodat	Polygalaceae	3(1)	NT(2)
67. *Nassella cordobensis* (Speg.) Barkworth	Poaceae	2(1)	LC(2)
68. *Nassella sanluisensis* (Speg.) Barkworth	Poaceae	2(1)	LC(2)
69. *Neobouteloua lophostachya* (Griseb.) Gould	Poaceae	1(2)	LC(2)
70. *Neobouteloua paucirracemosa* M.G.López & Biurrun	Poaceae	4(2)	NT(2)
71. *Opuntia sulphurea* Gillies ex Salm-Dyck var. *sulphurea*	Cactaceae	1(2)	LC(2);Ap.II(4)
72. *Parodianthus ilicifolius* (Moldenke) Tronc.	Verbenaceae	4(1)	VU(2)
73. *Plectrocarpa tetracantha* Gillies ex Hook. & Arn.	Zygophyllaceae	2(1)	LC(2)
74. *Portulaca confertifolia* Hauman var. *confertifolia*	Portulacaceae	2(1)	NT(2)
75. *Portulaca echinosperma* Hauman	Portulacaceae	2(1)	NT(2)
76. *Portulaca perennis* R.E.Fr.	Portulacaceae	2(2)	LC(2)
77. *Prosopidastrum globosum* (Gillies ex Hook. & Arn.) Burkart	Fabaceae	2(2)	VU(2)
78. *Prosopis alpataco* Phil. f. *alpataco*	Fabaceae	2(2)	LC(2); R.L.(5)
79. *Prosopis argentina* Burkart	Fabaceae	2(2)	VU(2); R.L.(5)
80. *Prosopis torquata* (Cav. ex Lag.) DC.	Fabaceae	2(1)	NT(2); R.L.(5)
81. *Proustia cuneifolia* D.Don var. *mendocina* (Phil.) Ariza	Asteraceae	3(2)	LC(2)
82. *Ramorinoa girolae* Speg.	Fabaceae	4(1)	EN(2)
83. *Sclerophylax arnottii* Miers	Solanaceae	3(1)	EN(2)
84. *Sclerophylax difulvioi* Del Vitto & Petenatti	Solanaceae	5(1,2)	CR(2); EN(6)
85. *Sclerophylax kurtzii* Di Fulvio	Solanaceae	3(1)	VU(2)
86. *Senecio hualtaranensis* Petenatti, Ariza & Del Vitto	Asteraceae	5(1,2)	CR(2); EN(6)
87. *Senecio leucostachys* Baker	Asteraceae	3(2)	LC(2)
88. *Senecio riojanus* Cabr. var. *radiatus* Cabr.	Asteraceae	3(2)	LC(2)
89. *Senecio subulatus* D.Don ex Hook. & Arn. var. *erectus* Hook. & Arn.	Asteraceae	2(2)	LC(2)
90. *Senecio subulatus* D. Don ex Hook.& Arn. var. *subulatus*	Asteraceae	3(2)	LC(2)
91. *Senna acanthoclada* (Griseb.) H.S.Irwin & Barneby	Fabaceae	3(1)	NT(2)
92. *Senna aphylla* (Cav.) H.S.Irwin & Barneby var. *aphylla*	Fabaceae	3(2)	LC(2)
93. *Setaria cordobensis* R.A.W.Herrm.	Poaceae	2(1)	LC(2)
94. *Setaria leucopila* (Scribn. & Merr.) K.Schum.	Poaceae	1(2)	LC(2)
95. *Setiechinopsis mirabilis* (Speg.) De Haas	Cactaceae	4(2)	NT(2);Ap.II(4)
96. *Solanum hastatilobum* Bitter var. *hastatilobum*	Solanaceae	3(1)	EN(2)
97. *Solanum tweedianum* Hook.	Solanaceae	2(2)	NT(2)
98. *Sphaeralcea brevipes* (Philippi) Krapov.	Malvaceae	2(1)	LC(2)

Table 4 (cont.). Conservational status of Argentinian endemic taxa recorded in the SQNP.
Tabla 4 (cont.). Estado de conservación de los taxones endémicos de Argentina registrados en el PNSQ.

Taxa	Family	Risk PlanEAr	*Status* (IUCN;CITES; this work)
99. *Sphaeralcea miniata* (Cav.) Spach	Malvaceae	2(1)	LC(2)
100. *Sporobolus phleoides* Hack.	Poaceae	2(1)	LC(2)
101. *Sporobolus rigens* (Trin.) E.Desv. var. *rigens*	Poaceae	2(2)	LC(2)
102. *Suaeda divaricata* Moq.	Chenopodiaceae	3(2)	LC(2)
103. *Tephrocactus alexanderi* (Britton & Rose) Backeb.	Cactaceae	3(1)	LC(3);Ap.II(4)
104. *Tephrocactus aoracanthus* (Lem.) Lem.	Cactaceae	3(2)	LC(3);Ap.II(4)
105. *Tephrocactus articulatus* (Pfeiff.) Backeb. var. *articulatus*	Cactaceae	3(1)	LC(3);Ap.II(4)
106. *Tephrocactus articulatus* (Pfeiff.) Backeb. var. *oligacanthus* (Speg.) Backeb.	Cactaceae	3(2)	LC(3);Ap.II(4)
107. *Tephrocactus halophilus* (Speg.) Backeb.	Cactaceae	5(1)	VU(2);Ap.II(4)
108. *Thymophylla pentachaeta* (DC.) Small var. *belenidium* (DC.) Strother	Asteraceae	3(2)	LC(2)
109. *Tillandsia aizoides* Mez	Bromeliaceae	3(2)	NT(2)
110. *Tillandsia andicola* Gillies ex Baker	Bromeliaceae	2(2)	LC(2)
111. *Tillandsia angulosa* Mez	Bromeliaceae	4(2)	NT(2)
112. *Tillandsia castellanii* L.B.Smith	Bromeliaceae	3(1)	NT(2)
113. *Tillandsia retorta* Griseb. ex Baker	Bromeliaceae	3(1)	NT(2)
114. *Tillandsia xiphioides* Ker-Gawl. var. *minor* L.Hrom.	Bromeliaceae	2(2)	NT(2)
115. *Trichocereus candicans* (Gillies ex Salm-Dyck) Britton & Rose	Cactaceae	3(1)	LC(3);Ap.II(4)
116. *Trichocereus strigosus* (Salm-Dyck) Britton & Rose	Cactaceae	3(2)	LC(3);Ap.II(4)
117. *Tricomaria usillo* Hook. & Arn.	Malpighiaceae	3(1)	LC(2)
118. *Wedelia buphthalmiflora* Lorentz	Asteraceae	1(2)	LC(2)
119. *Xanthium ambrosioides* Hook. & Arn.	Asteraceae	4(2)	LC(2)
120. *Xeroaloysia ovatifolia* (Moldenke) Tronc.	Verbenaceae	3(1)	LC(2)

Ref.: **(1)**: estimate for Argentina in / estimación para Argentina en / PlanEAr (2015-2019). - **(2)**: estimate for this work by authors, at regional level, according to / estimación de los autores para este trabajo, a nivel regional, según / Del Vitto *et al.* 2011. - **(3)**: valuation according to / evaluación según / IUCN (2012). - **(4)**: according to / según / CITES (2017). - **(5)**: genus included in IUCN Red List / género incluido en las Listas Rojas de IUCN (IUCN 2019). - **(6)**: estimate on certain endemic plants of San Luis province in / estimación para algunos endemismos de la provincia de San Luis en / Ayarragaray *et al.* (2015).- **CR**: critically endangered / en peligro crítico. - **EN**: endangered / en peligro. - **LC**: least concern / preocupación menor. - **NT**: near threatened / casi amenazada. - **VU**: Vulnerable.- **Ap. II**: CITES Appendix II / Apéndice II de la CITES.

Table 5. Raunkiaer´s life-forms in the SQNP vascular flora.
Tabla 5. Bioformas de Raunkiaer en la flora vascular del PNSQ.

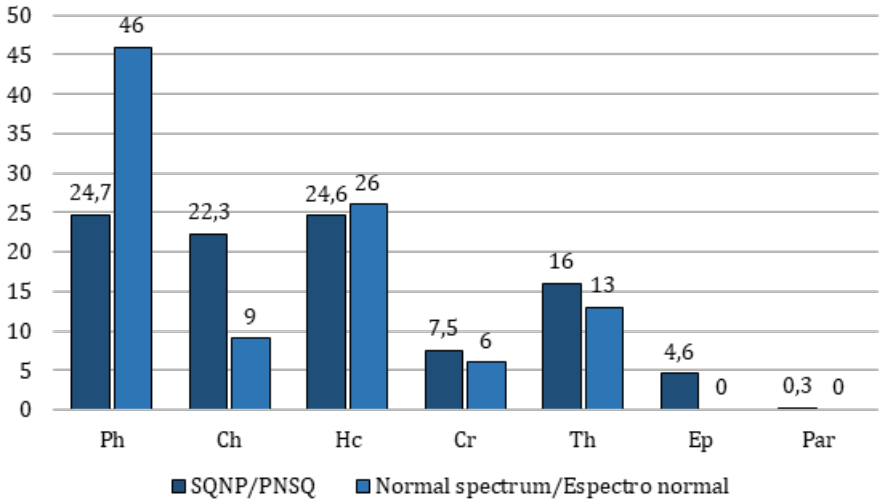
*When more than one biological type or subtype could be diagnosed in a taxon, the most exposed form was chosen for computation purposes.

Cuando más de un tipo biológico pudo ser diagnosticado para un taxón, a los fines del cómputo se eligió la forma más expuesta.

Life-forms		Symbol	Subtypes*		Types*	
Types	**Subtypes**		**Number of taxa**	**%**	**Number of taxa**	**%**
Phanerophytes (Ph)	Microphanerophytes	**micPh**	20	**5.4**	91	**24.7**
	Nanophanerophytes	**nPh**	69	**18.7**		
	Scandent nanophanerophytes	**nPh scand**	1	**0.3**		
	Succulent nanophanerophytes	**nPh succ**	1	**0.3**		
Chamaephytes (Ch)	Pulvinate chamaephytes	**Ch pulv**	1	**0.3**	82	**22.3**
	Reptant chamaephytes	**Ch rept**	5	**1.3**		
	Scandent chamaephytes	**Ch scand**	4	**1.1**		
	Succulent chamaephytes	**Ch succ**	14	**3.8**		
	Suffrutescent chamaephytes	**Ch suff**	58	**15.8**		
Hemicryptophytes (Hc)	Caespitose hemicryptophytes	**Hc caesp**	49	**13.3**	91	**24.6**
	Reptant hemicryptophytes	**Hc rept**	8	**2.2**		
	Rosulate hemicryptophytes	**Hc ros**	3	**0.8**		
	Scandent hemicryptophytes	**Hc scand**	2	**0.5**		
	Scapose hemicryptophytes	**Hc scap**	14	**3.8**		
	Subrosulate hemicryptophytes	**Hc sros**	12	**3.2**		
	Succulent hemicryptophytes	**Hc succ**	3	**0.8**		

Table 5 (cont.). Raunkiaer´s life-forms in the SQNP vascular flora.
Tabla 5 (cont.). Bioformas de Raunkiaer en la flora vascular del PNSQ.

Life-forms		Symbol	Subtypes*		Types*	
Types	**Subtypes**		**Number of taxa**	**%**	**Number of taxa**	**%**
Cryptophytes (Cr)	Bulb/tuber geophytes	**G bulb/tub**	2	**0.5**	28	**7.5**
	Root-bud geophytes	**G radg**	2	**0.5**		
	Rhizome geophytes	**G rhiz**	15	**4.1**		
	Rhizome helophytes	**Hel rhiz**	5	**1.3**		
	Rhizome hydrophytes	**Hyd rhiz**	1	**0.3**		
	Acropleustophytes	**acroPl**	1	**0.3**		
	Mesopleustophytes	**mesoPl**	2	**0.5**		
Therophytes (Th)	Caespitose therophytes	**Th caesp**	7	**1.9**	59	**16**
	Reptant therophytes	**Th rept**	8	**2.2**		
	Scandent therophytes	**Th scand**	4	**1.1**		
	Scapose therophytes	**Th scap**	26	**7**		
	Subrosulate therophytes	**Th sros**	7	**1.9**		
	Succulent therophytes	**Th succ**	7	**1.9**		
Epiphytes (Ep)	Holoepiphytes	**holoEp**	15	**4.1**	17	**4.6**
	Hemiparasitic epiphytes	**Ep hpar**	2	**0.5**		
Parasites (P)	Rhizome holoparasites	**holoP rhiz**	1	**0.3**	1	**0.3**
TOTAL (number and %)			**369**	**100**	**369**	**100**



Ref.: Ph: phanerophytes / faneróftos; Ch: chamaephytes / caméfitos; Hc: hemicryptophytes / hemicriptófitos; Cr: cryptophytes / criptófitos; Th: therophytes / terófitos; Ep: epiphytes / epífitos; Par: parasites / parásitos.

Figure 5. Life-forms spectrum of the SQNP vascular flora in comparison with the Raunkiaer's "normal" spectrum (1934). Percentage values.

Figure 5. Espectro biológico de la flora vascular del PNSQ comparado con el espectro "normal" de Raunkiaer (1934). Valores porcentuales.

Within each type, one or at most two subtypes predominate. Thus, nanophanerophytes comprise 18.7% of the taxa, while microphanerophytes (the unique trees in the region, always low) reach only 5.4%. The suffruticose chamaephytes, with 15.8%, represent the majority of the chamaephyte type, complemented by the succulent ones (3.8%), which are mostly pulviniform Cacti. Caespitose hemicryptophytes include, by themselves, 13.3% of the taxa, mostly perennial grasses. Among the cryptophytes, the rhizomatous geophytes (4.1%) stand out, with a minor participation of helophytes and hydrophytes, which of

course show greater representativeness and coverage in flooded areas. Scapose therophytes represent the majority of annual plants, reaching 7% of the taxa; although with about 2% each, cespitose, reptant, subrosulated and succulent therophytes are also well represented. Holoepiphytes comprise 4.1%, while holoparasites only reach *ca*. 0.3%.

Compared to the "normal" spectrum in the Raunkiaer concept (54), that of the SQNP flora presents almost half of phanerophytes, more than double chamaephytes and a similar number of hemicryptophytes, cryptophytes and therophytes (figure 5, page 231). It also includes near 5% of epiphytes (particularly "claveles del aire", non-parasitic bromeliads of the genus *Tillandsia*), two species of hemiparasites, *Ligaria cuneifolia* (Ruiz & Pav.) Tiegh. and *Tripodanthus flagellaris* (Cham. & Schltdl.) Tiegh., and one species of an absolute parasite, *Prosopanche americana* L.

5. New records for the flora of San Luis province

In the course of this study, specimens of 8 taxa not previously reported for the native flora of the Province of San Luis were identified. They are, in alphabetic order: *Adesmia cordobensis* Burkart var. *cordobensis* (Fabaceae); *Aloysia polystachya* (Griseb.) Moldenke and *Glandularia aristigera* (S. Moore) Tronc. (Verbenaceae); *Gomphrena boliviana* Moq. f. *boliviana* (Amaranthaceae); *Salsola kali* L. var. *hirsuta* Hornem. and *S. kali* L. var. *tragus* (L.) Moq. (Chenopodiaceae); and finally *Tillandsia andicola* Gillies ex Baker and *T. angulosa* Mez (Bromeliaceae). Tables 8 and 9 (pages 233-248) enclose the corresponding voucher specimens.

Table 6 / Tabla 6. Monilophyta.

I - MONILOPHYTA - POLYPODIOPSIDA						
FAMILY / FAMILIA – Taxon/ Taxón	**Common name / Nombre vulgar[1]**	**Habit / Hábito**	**Life-form / Forma biológica[2]**	**Geographical origin / Origen**	**Status / Condición[3]**	***Exsiccata selecta*[4]**
PTERIDACEAE Kirchn.						
Argyrochosma nivea (Poir.) Windham var. ***flava*** (Hook.) Ponce	doradilla	PH	G rhiz	South America	Native	DP&P 8096
Argyrochosma nivea (Poir.) Windham var. ***anthriscifolia*** (Schrad.) Mickel	doradilla	PH	G rhiz	South America	Native	H&M 16272 (CORD)
Argyrochosma nivea (Poir.) Windham var. ***tenera*** (Gillies ex Hook.) Ponce	doradilla	PH	G rhiz	South America	Native	D&P 1251
Asplenium gilliesii Hook.	helecho	PH	G rhiz	South America	Native	AC 26-1992 (BA)

Table 7 / Tabla 7. Gymnospermae.

II - GYMNOSPERMAE (= Pinophyta)						
FAMILY / FAMILIA – Taxon / Taxón	**Common name / Nombre vulgar[1]**	**Habit / Hábito**	**Life-form / Forma biológica[2]**	**Geographical origin / Origen**	**Status / Condición[3]**	***Exsiccata selecta*[4]**
EPHEDRACEAE Dumort.						
Ephedra americana Humb. & Bonpl. ex Willd.	tramontana	SH	nPh	South America	Native	DP&P 6432
Ephedra ochreata Miers	solupe	SH	nPh	South America	Native	D&P 9635
Ephedra triandra Tul. emend. J.H.Hunz.	solupe	SH/SSH	nPh/Ch suff	South America	Native	D&P 6139

Table 8 / Tabla 8. Angiospermae - Monocotyledoneae.

III - ANGIOSPERMAE (= Magnoliophyta) - **MONOCOTYLEDONEAE** (=Liliopsida)						
FAMILY / FAMILIA – Taxon / Taxón	**Common name / Nombre vulgar[(1)]**	**Habit / Hábito**	**Life-form / Forma biológica[(2)]**	**Geographical origin / Origen**	**Status / Condición[(3)]**	***Exsiccata selecta*[(4)]**
AMARYLLIDACEAE J.St.-Hil.						
Habranthus jamesonii (Baker) Ravenna	cebolla de zorra	PH	G bulb	Argentina	Endemic	DP&P 8091
BROMELIACEAE Juss.						
Deinacanthon urbanianum (Mez) Mez	chaguar, ch. del llano	PH	Hc ros/G rhiz	South America	Native	DP&P 6025
Deuterocohnia longipetala (Baker) Mez	chaguar, cháguar	PH	Hc ros	South America	Native	DP&P 7480
Dyckia floribunda Griseb. var. ***floribunda***	chaguar, cháguar	PH	G rhiz	South America	Native	DP&P 7465
Dyckia velascana Mez	chaguar, cháguar	PH	G rhiz	Argentina	Endemic	DP&P 8069
Tillandsia aizoides Mez	clavel del aire	PH	holoEp	Argentina	Endemic	EH 1010 (SI)
Tillandsia andicola Gillies ex Baker		PH	holoEp	Argentina	Endemic	D&P 9518
Tillandsia angulosa Mez	clavel del aire	PH	holoEp	Argentina	Endemic	DP&P 8919
Tillandsia bandensis Baker	clavel del aire	PH	holoEp	South America	Native	q. Cantero (2016)
Tillandsia capillaris Ruiz & Pav. f. ***capillaris***		PH	holoEp	South America	Native	DP&P 6283-bis
Tillandsia castellanii L.B. Sm.	clavel del aire	PH	holoEp	Argentina	Endemic	LIF & al. 4125 (CTES)
Tillandsia duratii Vis. var. ***duratii***	clavel del aire	PH	holoEp	South America	Native	DP&P 8928
Tillandsia gilliesii Baker subsp. ***gilliesii***	clavel del aire	PH	holoEp	South America	Native	DP&P 8093
Tillandsia minutiflora Donadío	clavel del aire	PH	holoEp	South America	Native	DP&P 6283
Tillandsia myosura Griseb. ex Baker		PH	holoEp	South America	Native	DP&P 6280
Tillandsia pedicellata (Mez) A. Castellanos		PH	holoEp	South America	Native	D&P 9517
Tillandsia rectangula Baker	clavel del aire	PH	holoEp	South America	Native	DP&P 6282
Tillandsia retorta Griseb. ex Baker	clavel del aire	PH	holoEp	Argentina	Endemic	D&P 9632
Tillandsia xiphioides Ker Gawl. var. ***minor*** L. Hrom.	azahar del campo, clavel del aire	PH	holoEp	Argentina	Endemic	D&P 9516
Tillandsia xiphioides Ker Gawl. var. ***xiphioides***	azahar del campo, clavel del aire	PH	holoEp	South America	Native	EH 1011 (SI)
COMMELINACEAE Mirb.						
Commelina erecta L. var. ***erecta***	ojito de gringo	PH	Hc caesp	South America	Native	DP&P 8406
CYPERACEAE Juss.						
Cyperus rotundus L.	tamascán	PH	G tub	Cosmopolite	Native	DP&P 8407-bis
Schoenoplectus californicus (C.A.Meyer) Soják var. ***californicus***	junco, totora	PH	Hel rhiz	America	Native	K 5053 (SI)
HYDROCHARITACEAE Juss.						
Najas guadalupensis (Spreng.) Magnus		AH, aquatic	Th/mesoPl	America	Native	H&M 16219 (CORD)
Najas marina (Spreng.) Magnus		AH, aquatic	Th/mesoPl	Cosmopolite	Native	A 16093 (VMSL)

Table 8 (cont.) / Tabla 8 (cont.). Angiospermae - Monocotyledoneae.

III - ANGIOSPERMAE (= Magnoliophyta) - **MONOCOTYLEDONEAE** (=Liliopsida)						
FAMILY / FAMILIA – Taxon / Taxón	**Common name / Nombre vulgar(1)**	**Habit / Hábito**	**Life-form / Forma biológica(2)**	**Geographical origin / Origen**	**Status / Condición(3)**	***Exsiccata selecta*(4)**
JUNCACEAE Juss.						
Juncus acutus L. subsp. ***leopoldii*** (Parl.) Snogerup	hunco, junco	PH	Hc caesp/G rhiz	Cosmopolite	Native	D&P 9532
Juncus balticus Willd.	hunco, junco	PH	Hc caesp/G rhiz	Europe/ America	Native	D&P 9535
LEMNACEAE Gray						
Lemma gibba L.	lenteja de agua	AH	Th/acroPl	Cosmopolite	Native	RL 13128 (MERL)
POACEAE Barnh. (= Gramineae)						
Andropogon selloanus (Hack.) Hack.		PH	Hc caesp	America	Native	D&P 9636
Aristida adscensionis L.	flechilla, saetilla	AH	Th caesp	Cosmopolite	Native	A 2525 (VMSL)
Aristida mendocina Phil.	flechilla, saetilla negra	PH	Hc caesp	South America	Native	DP&P 6422
Aristida minutiflora Caro var. ***glabriflora*** Caro	saetilla chica	PH	Hc caesp	Argentina	Endemic	R 8168 (MERL)
Aristida minutiflora Caro var. ***minutiflora***	saetilla chica	PH	Hc caesp	Argentina	Endemic	DP&F 6539
Arundo donax L.	caña, caña de Castilla	SH	nPh/G rhiz	Asia/ Mediterranean	Naturalized	D&P 9534
Blepharidachne benthamiana (Hack. ex Kurtz) Hitchc.	pasto crucero	PH	Hc caesp	Argentina	Endemic	DP&F 6554
Blepharidachne hitchcockii Lahitte	pasto crucero	PH	Hc caesp	Argentina	Endemic	DP&P 6449
Bouteloua aristidoides (Kunth) Griseb.	saitilla fina	AH	Th caesp	America	Native	DP&P 8434
Bouteloua barbata Lag.		AH	Th caesp	America	Native	D&P 5873
Cenchrus ciliaris L. cv. "**Texas 4464**"	búfel, buffel-grass	PH	Hc caesp	Africa	Escaped	D 9492
Cenchrus spinifex Cav.	roseta	AH/PH	Th/Hc caesp	America	Native	DP&P 6011
Chloris castilloniana Lillo & Parodi var. ***castilloniana***	pasto crespo	PH	Hc caesp	South America	Native	D&P 5889
Chloris castilloniana Lillo & Parodi var. ***pubescens*** Caro & Sánchez	pasto crespo	PH	Hc caesp	South America	Native	D&P 8386
Chloris ciliata Sw. f. ***breviseta*** Hack.	pasto borla	PH	Hc caesp/G rhiz	America	Native	D&BR (MERL 27672)
Chloris ciliata Sw. f. ***ciliata***	pasto borla	PH	Hc caesp/G rhiz	America	Native	DP&P 6079
Chloris virgata Sw.	pasto borla	AH	Th caesp/Hc	America	Native	DP&P 8078
Cortaderia selloana (Schult. & Schult. *f.*) Asch. & Graebn. subsp. ***selloana***	cortadera	PH	Hc caesp/G rhiz	South America	Native	D&P 9540
Cottea pappophoroides Kunth	pasto liebre, pasto indio	PH	Hc caesp/G rhiz	America	Native	DP&F 6558
Cynodon dactylon (L.) Pers. var. ***dactylon***	chepica, gramilla, gramón	PH	G rhiz	Cosmopolite	Native	DP&P 6416
Digitaria californica (Benth.) Henrard	pasto plateado	PH	Hc caesp/G rhiz	America	Native	DP&P 8388
Disakisperma dubium (Kunth) P.M.Peterson & N.W.Snow	pasto pujante	PH	Hc caesp	America	Native	DP&P 6081
Distichlis acerosa (Griseb.) H.L.Bell & Columbus	pasto salado	PH	Hc caesp/G rhiz	Argentina	Endemic	GB& al. 4427 (CORD)

Table 8 (cont.) / Tabla 8 (cont.). Angiospermae - Monocotyledoneae.

III - ANGIOSPERMAE (= Magnoliophyta) - **MONOCOTYLEDONEAE** (=Liliopsida)						
FAMILY / FAMILIA – Taxon / Taxón	**Common name / Nombre vulgar[1]**	**Habit / Hábito**	**Life-form / Forma biológica[2]**	**Geographical origin / Origen**	**Status / Condición[3]**	***Exsiccata selecta*[4]**
Distichlis spicata (L.) Greene var. ***spicata***	pasto salado, pelo de chancho	PH	G rhiz	America	Native	D&P 9515
Eragrostis cilianensis (All.) Vignolo ex Janch.	pasto hediondo	AH	Th caesp	Europe	Naturalized	DP&P 8449
Eragrostis lugens Nees	pasto ilusión	PH	Hc caesp	America	Native	DP&P 8443
Eragrostis mexicana (Hornem.) Link subsp. ***mexicana***	pasto hediondo	AH	Th caesp	America	Native	DP&P 6474
Eriochloa pseudoacrotricha (Stapf ex Thell.) J.M. Black		PH	Hc caesp	Oceanía	Adventitious	DP&P 9500
Erioneuron pilosum (Buckley) Nash var. ***longiaristatum*** (Kurtz) Anton		PH	Hc caesp/G rhiz	Argentina	Endemic	H&C 16405 (CORD)
Gouinia paraguayensis (Kuntze) Parodi var. ***paraguayensis***	avenilla	PH	Hc caesp/G rhiz	South America	Native	DP&P 6002
Heteropogon contortus (L.) P.Beauv. ex Roem. & Schult.		PH	Hc caesp/G rhiz	Cosmopolite	Native	H&C 15044 (CORD)
Jarava plumosula (Nees ex Steud.) F.Rojas	coirón	PH	Hc caesp/G rhiz	South America	Native	DP&P 6076
Leptochloa crinita (Lag.) P.M.Peterson & N.W.Snow	pasto plumero, pasto de hoja	PH	Hc caesp	America	Native	D&P 6138
Leptochloa fusca (L.) Kunth subsp. ***uninervia*** (J.Presl) N.W.Snow	pasto engordador	PH	Hc caesp	America	Native	DP&P 8075
Leptochloa panicea (Retz.) Ohwi subsp. ***brachiata*** (Steud.) N.W. Snow	pasto fino	AH/PH	Th/Hc caesp	America	Native	DP&P 8433
Muhlenbergia asperifolia (Nees & Meyen ex Trin.) Parodi	pasto tul	PH	G rhiz	South America	Native	D&P 9539
Nassella cordobensis (Speg.) Barkworth	flechilla, coirón	PH	Hc caesp	Argentina	Endemic	H&C 16404 (CORD)
Nassella neesiana (Trin. & Rupr.) Barkworth	flechilla, coirón	PH	Hc caesp	South America	Native	A& al. 3213 (VMSL)
Nassella sanluisensis (Speg.) Barkworth	flechilla, coirón	PH	Hc caesp	Argentina	Endemic	A 2348 (VMSL)
Neobouteloua lophostachya (Griseb.) Gould	pasto crespo	PH	Hc caesp/G rhiz	Argentina	Endemic	DP&F 6358
Neobouteloua paucirracemosa M.G.López & Biurrun	pasto crespo	PH	Hc caesp	Argentina	Endemic	A 3872 (VMSL)
Panicum urvilleanum Kunth	tupe	PH	G rhiz	America	Native	Burkart 10858 (SI)
Pappophorum caespitosum Fries	pasto liebre, pasto criollo	PH	Hc caesp	South America	Native	D&P 5891
Pappophorum philippianum Parodi	pasto liebre, pasto criollo	PH	Hc caesp	America	Native	DP&P 6060
Pappophorum vaginatum Buckley		PH	Hc caesp	America	Native	DP&P 8451
Pappostipa vaginata (Phil.) Romasch. var. ***vaginata***		PH	Hc caesp	South America	Native	A 2354 (VMSL)

Table 8 (cont.) / Tabla 8 (cont.). Angiospermae - Monocotyledoneae.

III - ANGIOSPERMAE (= Magnoliophyta) - **MONOCOTYLEDONEAE** (=Liliopsida)						
FAMILY / FAMILIA – Taxon / Taxón	**Common name / Nombre vulgar[1]**	**Habit / Hábito**	**Life-form / Forma biológica[2]**	**Geographical origin / Origen**	**Status / Condición[3]**	***Exsiccata selecta*[4]**
Paspalum distichum L.	pasto horqueta	PH	Hc caesp/G rhiz	Cosmopolite	Native	A& al. 3832 (VMSL)
Phragmites australis (Cav.) Trin. ex Steud.	carrizo	PH	Hc/G rhiz	Cosmopolite	Native	D&P 9538
Setaria cordobensis R.A.W.Herrm.	cola de zorro	PH	Hc caesp	Argentina	Endemic	DP&P 8390
Setaria leucopila (Scribn. & Merr.) K.Schum.	cola de zorro	PH	Hc caesp	Argentina	Endemic	D&P 5852
Setaria pampeana Parodi ex Nicora	cola de zorro	PH	Hc caesp	South America	Native	H&C 16433 (CORD)
Setaria parviflora (Poir.) Kerg. var. ***parviflora***	cola de zorro	PH	Hc caesp/G rhiz	America	Native	DP&P 8074
Sporobolus monandrus Rosengurtt, Arr. & Izag.		PH	Hc caesp	South America	Native	D&P 5882
Sporobolus indicus (L.) R. Br.	pasto alambre	PH	Hc caesp	America	Native	DP&P 6068
Sporobolus phleoides Hack.	pasto raíz	PH	Hc caesp	Argentina	Endemic	D&P 6142
Sporobolus pyramidatus (Lam.) Hitchcock	pasto del niño	PH	Hc caesp	America	Native	D&P 6120
Sporobolus rigens (Trin.) E. Desv. var. ***rigens***	junquillo	PH	G rhiz	Argentina	Endemic	D&P 9537
Stapfochloa grandiflora (Roseg. & Izag.) Wipff & Shaw		PH	Hc caesp	South America	Native	H&C 16397 (CORD)
Tragus australianus S.T.Blake		AH	Th caesp	Australia	Naturalized	H&C 16334 (CORD)
Tragus berteronianus Schult.		AH	Th caesp	Old World	Naturalized	DP&P 6419
Tripogonella spicata (Nees) P.M. Peterson & Romasch.	pasto negro	PH	Hc caesp	America	Native	A 3050 (VMSL)
POTAMOGETONACEAE Berchtold & J.Presl						
Zannichellia palustris L.		PH	Hyd rhiz	Cosmopolite	Native	H&C 16443 (CORD).
TYPHACEAE Juss.						
Typha domingensis Pers.	totora	PH	Hel rhiz	South America	Native	A&A 279 (CORD)
Typha subulata Crespo & R.L. Pérez-Moreau	totora	PH	Hel rhiz	South America	Native	D&P 9543

Table 9 / Tabla 9. Angiospermae - Dicotyledoneae.

IV - ANGIOSPERMAE (= Magnoliophyta) - **DICOTYLEDONEAE** (= Magnoliopsida)						
FAMILY / FAMILIA – *Taxon / Taxón*	**Common name / Nombre vulgar[1]**	**Habit / Hábito**	**Life-form / Forma biológica[2]**	**Geographical origin / Origen**	**Status / Condición[3]**	***Exsiccata selecta*[4]**
ACANTHACEAE Juss.						
Justicia gilliesii (Nees) Benth.	alfalfita	SSH	Ch suff	South America	Native	D&P 5869
Justicia hunzikeri Ariza		SSH	Ch suff	Argentina	Endemic	A 1936 (VMSL)
AMARANTHACEAE Juss.						
Alternanthera nodifera (Moq.) Griseb.		SSH	Hc/Ch suff	South America	Native	DP&P 8373
Alternanthera pungens Kunth	yerba del pollo	PH	Ch rept	Cosmopolite	Native	DP&P 8084
Alternanthera suessenguthii Covas		PH	Ch rept	Argentina	Endemic	H&M 16289 (CORD)
Amaranthus muricatus (Moq.) Hieron.	yerba meona	PH	Hc/Ch rept	South America	Native	DP&P 8083
Amaranthus standleyanus Parodi ex Covas	bledo	AH	Th rept	South America	Native	DP&P 6464
Gomphrena boliviana Moq. f. ***boliviana***	solo	AH	Th scap	South America	Native	D&P 6451
Gomphrena colosacana Hunz. & Subils var. ***andersonii*** Subils & Hunz.	rosetilla	SSH	Ch pulv	Argentina	Endemic	DP&P 6048
Gomphrena haenkeana Mart.		AH	Th scap	South America	Native	H&C 14995 (CORD)
Gomphrena mendocina (Phil.) R.E.Fr. subsp. ***mendocina***		AH	Th scap	Argentina	Endemic	P& al. 7908 (SI)
Gomphrena pulchella Mart. subsp. ***rosea*** (Griseb.) Pedersen	siempreviva del campo	SSH	Ch suff	Argentina	Endemic	DP&P 6074
Gomphrena pulchella Mart. var. ***bonariensis*** (Moq.) Pedersen		SSH	Ch suff	Argentina	Endemic	H&C 16399 (CORD)
Gomphrena tomentosa (Griseb.) R.E.Fr. var. ***ruiz-lealii*** Subils & Hunz.		PH	Hc rept	South America	Native	A 1407 (VMSL)
Gomphrena tomentosa (Griseb.) R.E.Fr. var. ***tomentosa***		PH	Hc rept	South America	Native	D&P 5870
ANACAMPSEROTACEAE Eggli & Nyffeler						
Grahamia bracteata Hook. & Arn.	vinagrillo	SH	Ch/nPh succ	Argentina	Endemic	DP&P 6505
ANACARDIACEAE R.Br.						
Schinus areira L.	pimiento, aguaribay	T	micPh	South America	Cultivated	D&P 9499
Schinus fasciculatus (Griseb.) I.M. Johnst. var. ***fasciculatus***	molle, molle morado	SH/LT	nPh/micPh	South America	Native	D&P 6123
APIACEAE Lindl. (= Umbelliferae)						
Asteriscium glaucum Hieron. & H.Wolff		SSH	Ch suff	Argentina	Endemic	D&P 6112
APOCYNACEAE Juss.						
Araujia brachystephana (Griseb.) Fontella & Goyder	tasi	L	Ch/nPh scand	South America	Native	D&P 9519
Araujia odorata (Hook. & Arn.) Fontella & Goyder	tasi	L	Ch/nPh scand	South America	Native	DP&P 8092
Aspidosperma quebracho-blanco Schltdl.	quebracho blanco	T	micPh	South America	Native	DP&P 6075

Table 9 (cont.) / Tabla 9 (cont.). Angiospermae - Dicotyledoneae.

IV - ANGIOSPERMAE (= Magnoliophyta) - **DICOTYLEDONEAE** (= Magnoliopsida)						
FAMILY / FAMILIA – *Taxon / Taxón*	**Common name / Nombre vulgar[(1)]**	**Habit / Hábito**	**Life-form / Forma biológica[(2)]**	**Geographical origin / Origen**	**Status / Condición[(3)]**	***Exsiccata selecta*[(4)]**
Philibertia gilliesii Hook. & Arn.		L	Ch scand	South America	Native	DP&P 8115
Tweedia brunonis Hook. & Arn.		L	Ch scand	South America	Native	D&P 5868
ASTERACEAE Berchtold & J.Presl (= Compositae)						
Austrobrickellia arnottii (Baker) R.M.King & H. Rob.		SH	nPh	South America	Native	A 2905 (CORD)
Austrobrickellia patens (D.Don ex Hook. & Arn.) R.M.King & H.Rob. var. ***patens***	bejuco, crucesilla	SH	nPh	South America	Native	A 2922 (VMSL)
Baccharis darwinii Hook. & Arn.		SSH	Ch suff/G radg	South America	Native	A& al. 2880 (VMSL)
Baccharis glutinosa Pers.	chilca	SSH	Ch suff/G radg	South America	Native	DP&S 9507
Baccharis melanopotamica Speg.		SSH	Ch suff/G rhiz	Argentina	Endemic	A& al. 3436 (VMSL)
Baccharis salicifolia (Ruiz & Pav.) Pers.	chilca, chilca amarga	SH	nPh	America	Native	DP&P 6443
Baccharis spartioides (Hook. & Arn. ex DC.) J.Rémy	pichana	SH/SSH	nPh/Ch suff	South America	Native	A 1932 (VMSL)
Baccharis tenella Hook. & Arn.		PH	G rhiz	Argentina	Endemic	DP&P 6434
Bidens exigua Sherff.	amor seco	AH	Th scap	South America	Native	H&C 14986, (CORD)
Bidens pilosa L. var. ***pilosa***	amor seco	AH	Th scap	Pantropical	Adventitious	D&P 9520
Bidens subalternans DC. var. ***simulans*** Sherff	amor seco	AH/PH	Th/Hc scap	South America	Native	DP&F 8414
Bidens subalternans DC. var. ***subalternans***	amor seco	AH/BH	Th/Hc scap	South America	Native	H&C 14973 (CORD)
Chuquiraga erinacea D.Don subsp. ***erinacea***	monte chirriador	SH/SSH	nPh/Ch suff	Argentina	Endemic	D&BR n.n. (MERL 27682)
Cirsium vulgare (Savi) Ten.	cardo	AH/BH	Th/Hc sros	Old World	Adventitious	D&P 9521
Conyza bonariensis (L.) Cronquist var. ***angustifolia*** (Cabrera) Cabrera	hierba carnicera	AH	Th sros	Argentina	Native	RL 8877 (MERL)
Conyza bonariensis (L.) Cronquist var. ***bonariensis***	hierba carnicera	AH	Th sros	South America	Native	DP&P 6395
Cyclolepis genistoides Gillies ex D. Don	palo azul	SH	nPh	South America	Native	DP&P 6408
Flaveria bidentis (L.) Kuntze	fique	AH	Th scap	America	Native	DP&P 8411
Flaveria haumanii Dimitri & Orfila	fique	AH	Th scap	South America	Native	DP&P 8089
Gaillardia megapotamica (Spreng.) Baker var. ***megapotamica***	botón de oro	PH	Hc sros/G radg	South America	Native	DP&P 8919-bis
Gaillardia megapotamica (Spreng.) Baker var. ***radiata*** Baker	topasaire	PH	Hc sros/G radg	South America	Native	A 1843 (VMSL)
Gamochaeta peregrina (Beauverd) S.E.Freire & Anderb.		AH	Th rept	Argentina	Endemic	DP&P 6402
Gochnatia glutinosa (D. Don) Hook. & Arn.	jarillilla, sancancia	SH	nPh	Argentina	Endemic	D&P 6127

Table 9 (cont.) / Tabla 9 (cont.). Angiospermae - Dicotyledoneae.

IV - ANGIOSPERMAE (= Magnoliophyta) - **DICOTYLEDONEAE** (= Magnoliopsida)						
FAMILY / FAMILIA – *Taxon / Taxón*	**Common name / Nombre vulgar[1]**	**Habit / Hábito**	**Life-form / Forma biológica[2]**	**Geographical origin / Origen**	**Status / Condición[3]**	***Exsiccata selecta*[4]**
Grindelia pulchella Dunal var. ***pulchella***	melosa, melosilla	SSH	Ch suff	South America	Native	DP&P 8393
Gutierrezia gilliesii Griseb.	canchalagua	SSH	Ch suff/G rhiz	Argentina	Endemic	DP&P 6094
Hyalis argentea D.Don ex Hook. & Arn. var. ***argentea***	olivillo, blanquilla	SSH	Ch sufr/G rhiz	Argentina	Endemic	D&P 9637
Hymenoxys anthemoides (Juss.) Cass.	botón de oro	AH	Th scap	South America	Native	AR n.n. (MERL 30321)
Hysterionica jasionoides Willd.		PH	Hc sros/G rhiz	South America	Native	DP&P 6485
Laennecia sophiifolia (Kunth) G.L.Nesom		AH	Th scap	South America	Native	D & al. 5689
Mikania periplocifolia Hook. & Arn.	guaco	L	Ch scand/rept	South America	Native	A 3981 (CORD)
Parthenium hysterophorus L.	yerba de la oveja	AH	Th sros	South America	Native	D&P 5854
Porophyllum obscurum (Spreng.) DC.	yerba del venado	SSH	Ch suff	South America	Native	DP&P 8916
Proustia cuneifolia D.Don var. ***mendocina*** (Phil.) Ariza	altepe	SH	nPh	Argentina	Endemic	A& al. 2518 (VMSL)
Pseudognaphalium gaudichaudianum (DC.) Anderb.	marcela, marcela macho	AH	Th sros	South America	Native	D&P 9530
Schkuhria pinnata (Lam.) Kuntze ex Thell.	matapulgas	AH	Th scap	South America	Native	DP&P 6447
Senecio leucostachys Baker		SSH	Ch suff	Argentina	Endemic	DP&P 8395
Senecio hualtaranensis Petenatti, Ariza & Del Vitto	romerillo blanco	SSH	Ch suff	Argentina	Endemic	D&P 6098
Senecio pinnatus Poir. var. ***pinnatus***		SSH	Ch suff	South America	Native	A 2523 (VMSL)
Senecio riojanus Cabrera var. ***radiatus*** Cabrera		SSH	Ch suff	Argentina	Endemic	D & al. 6099
Senecio subulatus D.Don ex Hook. & Arn. var. ***erectus*** Hook. & Arn.	romerillo	SH	nPh	Argentina	Endemic	A& al. 3868 (CORD)
Senecio subulatus D. Don ex Hook. & Arn. var. ***subulatus***	romerillo	SH	Ch suff/nPh	Argentina	Endemic	DP&P 6444
Sonchus oleraceus L.	cerraja	AH/BH	Th/Hc sros	Mediterráneo	Adventitious	D&P 9522
Symphyotrichum squamatum (Spreng.) G.L.Nesom	rama negra	PH	Hc sros	America	Native	D&P 9523
Taraxacum officinale F.H.Wigg.	diente de león	PH	Hc ros	Eurasia	Adventitious	D&P 9524
Tessaria absinthioides (Hook. & Arn.) DC.	pájaro bobo	SSH	Ch suff/G radg	South America	Native	D&P 5878
Tessaria dodoneifolia (Hook. & Arn.) Cabrera	chilca dulce	SH	nPh	South America	Native	D&P 6137
Thymophylla pentachaeta (DC.) Small var. ***belenidium*** (DC.) Strother	perlilla, perlía	SSH	Ch suff	Argentina	Endemic	DP&F 6544
Trixis cacalioides (Kunth) D. Don	coca inca, inga	SSH	Ch suff/G radg	South America	Native	DP&P 8925
Wedelia buphthalmiflora Lorentz		SSH	Ch suff	Argentina	Endemic	H 16256 (CORD)

Table 9 (cont.) / Tabla 9 (cont.). Angiospermae - Dicotyledoneae.

IV - ANGIOSPERMAE (= Magnoliophyta) - **DICOTYLEDONEAE** (= Magnoliopsida)						
FAMILY / FAMILIA – *Taxon / Taxón*	**Common name / Nombre vulgar[1]**	**Habit / Hábito**	**Life-form / Forma biológica[2]**	**Geographical origin / Origen**	**Status / Condición[3]**	***Exsiccata selecta*[4]**
Xanthium ambrosioides Hook. & Arn.	abrojo	AH	Th scap	Argentina	Endemic	D&P 9529
Xanthium spinosum L. var. ***spinosum***	cepa caballo	AH	Th scap	South America	Native	DP&P 6426
Xanthium strumarium L.	abrojo, abrojo grande	AH	Th scap	America	Native	D&P 9525
Zinnia peruviana (L.) L.	chinita del campo	AH	Th scap	America	Native	DP&P 8090
BORAGINACEAE Juss.						
Ehretia cortesia Gottschling	campa, cambao	SSH	Ch suff/G rhiz	Argentina	Endemic	DP&P 8382
Euploca campestris (Griseb.) Diane & Hilger		PH	Hc rept	South America	Native	DP&F 6356
Euploca catamarcense (I.M.Johnst.) M.W.Frohl.		PH	Hc rept	Argentina	Endemic	RL 17700 (MERL)
Euploca chrysantha (Phil.) Diane & Hilger	papa de piche	PH	Hc scap	South America	Native	AAC 542 (CORD)
Euploca mendocina (Phil.) Diane & Hilger	papa de piche	PH	Hc scap	Argentina	Endemic	DP&P 8408
Heliotropium curassavicum L. var. ***argentinum*** I.M.Johnst.	cola de novia	PH	Hc rept	South America	Native	D&P 9526
BRASSICACEAE Burnett (= Cruciferae)						
Exhalimolobos weddellii (E. Fourn.) Al-Shehbaz & C.D.Bailey	mostaza de la sierra	AH/BH	Th/Hc sros	South America	Native	H&C 16379 (CORD)
Lepidium bonariense L.		AH/BH	Th/Hc sros	South America	Native	N&al. 8099 (SI)
Mostacillastrum orbignyanum (E. Fourn.) Al-Shehbaz		PH/ SSH	Hc sros/Ch suff	South America	Native	DP&F 6543
Raphanus sativus L.	rábano silvestre	AH/BH	Th/Hc sros	Eurasia	Adventitious	DP&P 6452
CACTACEAE Juss.						
Cereus aethiops Haw.	hachón, cardoncito	SH	nPh succ	Argentina	Endemic	Corradi s/n (CORD 708)
Echinopsis leucantha (Gillies ex Salm-Dyck) Walp.		SSH	Ch succ	Argentina	Endemic	Culta (JB-UNSL 3-39)
Gymnocalycium gibbosum (Haw.) Pfeiff. ex Mittler		SSH	Ch succ	Argentina	Endemic	Culta (JB-UNSL 3-37)
Gymnocalycium saglionis (Cels) Britton & Rose	cardoncito	SSH	Ch succ	Argentina	Endemic	Culta (JB-UNSL 3-15)
Gymnocalycium schickendantzii (F.A.C. Weber) Britton & Rose var. ***schickendantzii***		SSH	Ch succ	Argentina	Endemic	Culta (JB-UNSL 3-58)
Opuntia sulphurea Gillies ex Salm-Dyck var. ***sulphurea***		SSH	Ch succ	Argentina	Endemic	Culta (JB-UNSL 3-21)
Setiechinopsis mirabilis (Speg.) de Haas		SSH	Ch succ	Argentina	Endemic	K 9321 (SI)
Tephrocactus alexanderi (Britton & Rose) Backeb.	bola de indio	SSH	Ch succ	Argentina	Endemic	JS 407 (VMSL)
Tephrocactus aoracanthus(Lem.) Lem.		SSH	Ch succ	Argentina	Endemic	Gez n.n. 1923 (SI 206)
Tephrocactus articulatus (Pfeiff.) Backeb. var. ***articulatus***	huevo del indio	SSH	Ch succ	Argentina	Endemic	Culta (JB-UNSL 3-35)

Table 9 (cont.) / Tabla 9 (cont.). Angiospermae - Dicotyledoneae.

IV - ANGIOSPERMAE (= Magnoliophyta) - **DICOTYLEDONEAE** (= Magnoliopsida)						
FAMILY / FAMILIA – *Taxon / Taxón*	**Common name / Nombre vulgar[(1)]**	**Habit / Hábito**	**Life-form / Forma biológica[(2)]**	**Geographical origin / Origen**	**Status / Condición[(3)]**	***Exsiccata selecta*[(4)]**
Tephrocactus articulatus (Pfeiff.) Backeb. var. ***oligacanthus*** (Speg.) Backeb.	puqui con bigotes	SSH	Ch succ	Argentina	Endemic	AC n.n. (BA 25852)
Tephrocactus halophilus(Speg.) Backeb.		SSH	Ch succ	Argentina	Endemic	Culta (JB-UNSL 3-62)
Trichocereus candicans (Gillies ex Salm-Dyck) Britton & Rose	cardón	SSH	Ch succ	Argentina	Endemic	Corradi s/n (CORD 1924)
Trichocereus strigosus (Salm-Dyck) Britton & Rose	cadoncito	SSH	Ch succ	Argentina	Endemic	q. Kiesling (1978)
CALYCERACEAE R.Br. ex Rich.						
Boopis anthemoides Juss. var. ***anthemoides***		PH	G rhiz/Ch suff	South America	Native	DP&P 6435
Calycera calcitrapa Griseb.		SSH	Ch suff	Argentina	Endemic	DP&P 8371
CANNABACEAE Martinov						
Celtis chichape (Wedd.) Miq.	tala	LT	micPh	South America	Native	JP& al. 7956 (SF)
Celtis pallida Torr.	tala	T/SH	micPh/nPh	South America	Native	H&C 14990 (CORD)
CAPPARACEAE Juss.						
Atamisquea emarginata Miers ex Hook. & Arn.	atamisque	SH/LT	nPh/micPh	South America	Native	D&P 6131
CHENOPODIACEAE Vent.						
Allenrolfea patagonica (Moq.) Kuntze	jume	SH/SSH	Ch suff	Argentina	Endemic	DP&P 8408-bis
Allenrofea vaginata (Griseb.) Kuntze	jume	SH	Ch suff/nPh	Argentina	Endemic	DP&P 8367
Atriplex argentina Speg.	zampilla	SSH	Ch suff	Argentina	Endemic	D&P 6105
Atriplex cordubensis Gand. & Stuck. subsp. ***cordubensis***	zampa	SH	nPh	Argentina	Endemic	M 1155 (SI)
Atriplex crenatifolia Chodat & Wilczek	zampa crespa	SH	nPh	Argentina	Endemic	DP&P 9541
Atriplex lampa (Moq.) D. Dietr.	zampa	SH	nPh	Argentina	Endemic	DP&P 8442
Atriplex lithophilaA. Soriano	zampa	SSH	Ch suff	Argentina	Endemic	DP&P 6404
Atriplex quixadensis Del Vitto, Múlgura & Petenatti	zampilla	SSH	Ch suff	Argentina	Endemic	D&P 5821
Atriplex spegazziniiA. Soriano ex Múlgura	zampa	SH	nPh	Argentina	Endemic	D&P 6117
Chenopodium papulosum Moq.		AH	Th scap	South America	Native	D&P 9527-bis
Dysphania ambrosioides(L.) Mosyakin & Clemants	paico, paico macho	AH/BH	Th/Hc scap	America	Native	DP&P 6481
Dysphania chilense(Schrad.) Mosyakin & Clemants	paico	AH/BH	Th/Hc scap	South America	Native	DP&P 6481
Heterostachys ritteriana (Moq.) Ung.-Sternb.	apén	SSH	Ch suff	America	Native	D&P 9528
Salsola kali L. var. ***hirsuta*** Hornem.	cardo ruso	AH	Th scap	Old World	Adventitious	DP&F 6546
Salsola kali L. var. ***tragus*** (L.) Moq.	cardo ruso	AH	Th scap	Old World	Adventitious	DP&P 6441

Table 9 (cont.) / Tabla 9 (cont.). Angiospermae - Dicotyledoneae.

IV - ANGIOSPERMAE (= Magnoliophyta) - **DICOTYLEDONEAE** (= Magnoliopsida)						
FAMILY / FAMILIA – *Taxon / Taxón*	**Common name / Nombre vulgar[1]**	**Habit / Hábito**	**Life-form / Forma biológica[2]**	**Geographical origin / Origen**	**Status / Condición[3]**	***Exsiccata selecta*[4]**
Sarcocornia ambigua (Michx.) M.A.Alonso & M.B.Crespo	vinagrillo	SSH	Ch succ	America	Native	D&P 9527
Suaeda divaricata Moq.	vidriera	SH	nPh	Argentina	Endemic	D&P 5855
CONVOLVULACEAE Juss.						
Convolvulus arvensis L.	corrregüela	PH	G rhiz	Europe	Adventitious	DP&P 6436
Cressa nudicaulis Griseb.	tripa de pollo	SSH	Ch suff/G rhiz	Argentina	Endemic	D&P 6140
Evolvulus arizonicus A. Gray	peludilla	PH	Hc scap	America	Native	DP&P 6077
Evolvulus sericeus Sw. var. ***sericeus***	peludilla	PH	Hc scap	America	Native	A 1655 (VMSL)
Ipomoea nil (L.) Roth	campanilla blanca	AH	Th scand	South America	Native	DP&P 6486
CUCURBITACEAE Juss.						
Cucumis anguriaL.	sandía del diablo	AH	Th scand	Cultigen	Adventitious	DP&P 8105
Cucurbita maxima subsp. ***andreana*** (Naudin) Filov	cháncara	AH	Th scand	Argentina	Native	DP&P 6100
Cucurbitella asperata (Gillies ex Hook. & Arn.) Walp.	sandía del zorro	PH	Hc scand	South America	Native	DP&P 6047
EUPHORBIACEAE Juss.						
Croton bonplandianus Baill.	nogal del zorro	PH/SSH	Hc scap/Ch suff	South America	Native	D&P 8902
Ditaxis catamarcensis (Griseb.) Pax		SSH	Ch suff/G rhiz	Argentina	Endemic	H&C 16425 (CORD)
Euphorbia berteroana Balb. ex Spreng.	lechetrés	AH	Th scap	South America	Native	DP&P 8924
Euphorbia eichleri Müll. Arg.		PH	Hc scap	South America	Native	H&C 16279 (CORD)
Euphorbia hirta L. var. ***ophtalmica*** (Pers.) Allen & Irgang	yerba de la golodrina	AH	Th scap	North America	Adventitious	DP&P 6500
Euphorbia klotzschii Oudejansvar***. argentina*** (Mull. Arg. ex Griseb.) Oudejans	yerba meona	AH	Th rept	South America	Native	DP&P 6425
Euphorbia klotzschii Oudejansvar. ***klotzschii***	yerba meona	AH	Th rept	South America	Native	H&C 15006 (CORD)
Euphorbia klotzschii Oudejans var. ***schizosepala*** (Engelm. ex Boiss.) Oudejans	yerba meona	AH	Th rept	South America	Native	DP&P 6403
Tragia hieronymi Pax & K.Hoffm	raspaculo	PH/ SSH	Hc scap/Ch suff	South America	Native	R s/n (MERL 3559)
FABACEAE Lindl.						
Adesmia cordobensis Burkart		SSH	Ch suff	Argentina	Endemic	DP&P 6069
Adesmia retrofracta Hook. & Arn.		PH/ SSH	Hc scap/Ch suff	Argentina	Endemic	DP&F 6545
Adesmia trijuga Gillies ex Hook. & Arn.	cuerno de cabra	SH	nPh	Argentina	Endemic	D&P 8915
Arquita mimosifolia (Griseb.) E.Gagnon, G.P.Lewis & C.E.Hughes	pishcalilla	SH	nPh	Argentina	Endemic	DP&P 8102
Erythrostemon gilliesii (Wall. ex Hook.) Klotzsch var. ***gilliesii***	lagaña de perro	SH	nPh	South America	Native	D&P 5881
Geoffroea decorticans(Gillies ex Hook. & Arn.) Burkart	chañar	LT/T	micPh/G radg	South America	Native	DP&P 6392

Table 9 (cont.) / Tabla 9 (cont.). Angiospermae - Dicotyledoneae.

IV - ANGIOSPERMAE (= Magnoliophyta) - **DICOTYLEDONEAE** (= Magnoliopsida)						
FAMILY / FAMILIA – *Taxon / Taxón*	**Common name / Nombre vulgar[1]**	**Habit / Hábito**	**Life-form / Forma biológica[2]**	**Geographical origin / Origen**	**Status / Condición[3]**	***Exsiccata selecta*[4]**
Geoffroea subtropicalis (Lillo) Martínez-Carretero	chañar	T	micPh/G radg	South America	Native	AC 2135 (BA)
Hoffmannseggia glauca (Ortega) Eifert	porotillo	PH	G rhiz	South America	Native	D&P 8904
Mimosa ephedroides (Gillies ex Hook. & Arn.) Benth.	pichana	SH/SSH	nPh/Ch suff	Argentina	Endemic	D&P 6121
Mimozyganthus carinatus (Griseb.) Burkart	lata	SH	nPh	South America	Native	DP&P 6019
Parasenegalia visco (Lorentz ex Griseb.) Seigler & Ebinger	visco, acacia	T	micPh	South America	Cultivated	D&P 9496
Parkinsonia praecox (Ruiz & Pav. ex Hook.) Hawkins	brea, chañar brea	SH/LT	nPh/micPh	America	Native	D&P 9497
Prosopidastrum globosum (Gillies ex Hook. & Arn.) Burkart	caballo del diablo	SH	nPh	Argentina	Endemic	D&P 9495
Prosopis alpataco Phil. f. ***alpataco***	alpataco	SH	nPh	Argentina	Endemic	AB 10850 (SI)
Prosopis argentina Burkart	algarrobo de guanaco	SH	nPh	Argentina	Endemic	R 11328 (MERL)
Prosopis chilensis (Molina) Stuntz emend. Burkart var. ***chilensis***	algarrobo chileno	T	micPh	South America	Native	A& al. 1401 (VMSL)
Prosopis flexuosa DC.f. ***flexuosa***	algarrobo dulce	T	micPh	South America	Native	DP&P 8370
Prosopis reptans Benth. var. ***reptans***	retortuño	SH/SSH	nPh/Ch suff/rhiz	South America	Native	ALC & al. 31041(SI)
Prosopis sericantha Gill. ex. Hook. & Arn.	matorro	SH	nPh	South America	Native	BSV 1014 (SI)
Prosopis strombulifera (Lam.) Benth. var. ***strombulifera***	retortuño	SSH	G radg	South America	Native	DP&P 8446
Prosopis torquata (Cav. ex Lag.) DC.	tintitaco, lata	SH/LT	nPh/micPh	Argentina	Endemic	DP&P 6020
Ramorinoa girolae Speg.	chica	SH	nPh	Argentina	Endemic	D&P 6115
Rhynchosia senna Gillies ex Hook. var. ***senna***		PH	Hc scand	South America	Native	D&P 9531
Senegalia gilliesii (Steud.) Seigler & Ebinger	garabato	SH	nPh	South America	Native	DP&P 6088
Senegalia praecox (Griseb.) Seigler & Ebinger		T	Ph	South America	Native	q. Cantero (2016)
Senna acanthoclada (Griseb.) H.S. Irwin & Barneby		SSH	Ch suff	Argentina	Endemic	D&P 5885
Senna aphylla (Cav.) H.S. Irwin & Barneby var. ***aphylla***	pichanilla	SSH	Ch suff	Argentina	Endemic	DP&P 8099
Vachellia aroma (Gillies ex Hook. & Arn.) Seigler & Ebinger	espinillo	SH/LT	nPh/micPh	South America	Native	D&P 6135
Vachellia caven (Molina) Seigler & Ebinger	espinillo, tusca	SH/LT	nPh/micPh	South America	Native	D&P 9498
Vachellia farnesiana (L.) Wight & Arn.	espinillo	SH/LT	nPh/micPh	South America	Native	DP&P 8450
Zuccagnia punctata Cav.	jarilla macho	SH	nPh	South America	Native	D&P 6113

Table 9 (cont.) / Tabla 9 (cont.). Angiospermae - Dicotyledoneae.

IV - ANGIOSPERMAE (= Magnoliophyta) - **DICOTYLEDONEAE** (= Magnoliopsida)						
FAMILY / FAMILIA – *Taxon / Taxón*	**Common name / Nombre vulgar[1]**	**Habit / Hábito**	**Life-form / Forma biológica[2]**	**Geographical origin / Origen**	**Status / Condición[3]**	***Exsiccata selecta*[4]**
HALOPHYTACEAE Soriano						
Halophytum ameghinoi (Speg.) Speg.	verdolaga	AH	Th succ	Argentina	Endemic	D&P 6124
HYDNORACEAE C.Agardh						
Prosopanche americana L.	flor de tierra	PH	holoP/G rhiz	South America	Native	JB n.n. (SI 168548)
LAMIACEAE Martinov (= Labiatae)						
Salvia cuspidata Ruiz & Pav. subsp. ***gilliesii*** (Benth.) J.R.I.Wood	salvia, salvia azul	SH	nPh	South America	Native	DP&P 6087
LOASACEAE Juss.						
Mentzelia albescens (Gillies ex Arn.) Griseb.	canuto	BH	Hc sros	America	Native	D&P 9638
Mentzelia parvifolia Urb. & Gilg ex Kurtz		AH/BH	Th/Hc sros	South America	Native	DP&P 6488
LORANTHACEAE Juss.						
Ligaria cuneifolia (Ruiz & Pav.) Tiegh.	liga, liga roja	WH	Ep hpar	South America	Native	D&P 6397
Tripodanthus flagellaris (Cham. & Schltdl.) Tiegh.	liga blanca	WH	Ep hpar	South America	Native	D&P 9528-bis
MALPIGHIACEAE Juss.						
Cordobia argentea (Griseb.) Nied.	manea caballo	L	Ch scand/rept	South America	Native	D&P 5884
Tricomaria usillo Hook. & Arn.	prendedor, crucita	SH	Ch suff/nPh	Argentina	Endemic	D&P 5874
MALVACEAE Juss.						
Anoda cristata (L.) Schltdl.		AH	Th scap	South America	Native	H&C 16426 (CORD)
Ayenia cordobensis (Hieron.) Hieron.		SSH	Ch suff	Argentina	Endemic	K&C 14566 (CTES)
Ayenia lingulata Griseb.		SSH	Ch suff	Argentina	Endemic	D&P 5883
Gaya parviflora (Phil.) Krapov.		PH/ SSH	Hc scap/Ch suff	South America	Native	D&P 8903
Malvastrum coromandelianum (L.) Garcke subsp. ***coromandelianum***		SSH	Ch suff	South America	Native	DP&P 6430
Pseudabutilon pedunculatum (R.E.Fr.) Krapov.		SSH/SH	nPh/Ch suff	South America	Native	A 1411 (VMSL)
Pseudabutilon virgatum (Cav.) Fryxell		SH/SSH	nPh/Ch suff	South America	Native	D&P 5858
Rhynchosida physocalyx (A.Gray) Fryxell		SSH	Ch suff	South America	Native	DP&P 8440
Sida argentina K.Schum. var. ***argentina***		PH	Hc scap	South America	Native	R 8153 (MERL)
Sida variegata (Griseb.) Krapov.		PH	Hc scap	South America	Native	DP&C 10768
Sphaeralcea brevipes (Phil.) Krapov.	malvavisco	SSH	Ch suff	Argentina	Endemic	DP&P 6427
Sphaeralcea miniata (Cav.) Spach	malvavisco	SSH	Ch suff	Argentina	Endemic	DP&F 6533
MARTYNIACEAE Horan.						
Ibicella lutea (Lindl.) Eselt.	cuernos del diablo	AH	Th sros	South America	Native	D&P 5879
Ibicella parodii Abbiatti	cuernos del diablo	AH	Th sros	Argentina	Endemic	DP&P 8070

Table 9 (cont.) / Tabla 9 (cont.). Angiospermae - Dicotyledoneae.

IV - ANGIOSPERMAE (= Magnoliophyta) - **DICOTYLEDONEAE** (= Magnoliopsida)						
FAMILY / FAMILIA – *Taxon / Taxón*	**Common name / Nombre vulgar[1]**	**Habit / Hábito**	**Life-form / Forma biológica[2]**	**Geographical origin / Origen**	**Status / Condición[3]**	***Exsiccata selecta*[4]**
NYCTAGINACEAE Juss.						
Allionia incarnata L.		PH	Hc rept	South America	Native	DP&P 6042
Boerhavia cordobensis Kuntze		PH/ SSH	Hc rept	Argentina	Endemic	H&C 16419 (CORD)
Boerhavia pulchella Griseb.	yerba tostada	PH/ SSH	Hc rept	Argentina	Endemic	D&P 5853
Bougainvillea spinosa (Cav.) Heimerl	monte negro	SH	nPh	South America	Native	D&P 6123
Mirabilis ovata (Ruiz & Pav.) F.Meigen	malvita del campo	PH	Hc scap	South America	Native	H&C 16390 (CORD)
OLACACEAE Juss. ex R.Br.						
Ximenia americana L. var. ***americana***	albaricoque, albarillo	SH/SSH	nPh/Ch suff	South America	Native	q. Cantero (2016)
Ximenia americana L. var. ***argentinensis*** De Filipps	albaricoque, albarillo	SH/SSH	nPh/Ch suff	South America	Native	D&P 9509
OXALIDACEAE R.Br.						
Oxalis conorhiza Jacq.	vinagrillo	PH	G rhiz	South America	Native	DP&P 6514
PLANTAGINACEAE Juss.						
Bacopa monnieri (L.) Wettst.	berrillo	PH	Hel/Hyd rhiz	Cosmopolite	Native	D&P 9533
Monttea aphylla (Miers) Benth. & Hook. var. ***aphylla***	ala de loro	SH	nPh	South America	Native	DP&P 6015
POLYGALACEAE Hoffmanns. & Link						
Monnina dictyocarpa Griseb.	quelén	PH	Ch suff	South America	Native	DP&P 6093
Monnina lorentziana Chodat		PH	Ch suff	Argentina	Endemic	D&P 8426
POLYGONACEAE Juss.						
Polygonum stypticum Cham. & Schltdl.		PH	Hc sros/G riz	South America	Native	DP&P 8076
PORTULACACEAE Juss.						
Portulaca confertifolia Hauman var. ***confertifolia***	flor de un día	PH	Hc succ	Argentina	Endemic	D&P 9639
Portulaca echinosperma Hauman	verdolaga	AH	Th succ	Argentina	Endemic	DP&P 6053
Portulaca grandiflora Hook.	verdolaga	AH	Th succ	South America	Native	DP&P 8421
Portulaca oleracea L.	verdolaga	AH	Th succ	Cosmopolite	Adventitious	DP&P 8110
Portulaca perennis R.E.Fr.	verdolaga	PH	Hc succ	Argentina	Endemic	D&P 9640
RANUNCULACEAE Juss.						
Clematis montevidensis Spreng. var. ***montevidensis***	barba de viejo	L	nPh/Ph scand	South America	Native	DP&P 8414
RHAMNACEAE Juss.						
Condalia microphylla Cav.	piquillín	SH	nPh	Argentina	Endemic	D&P 9536
RUTACEAE Juss.						
Ruta chalepensis L.	ruda	SSH	Ch suff	Eurasia	Adventitious	D&P 9631
SALICACEAE Mirb.						
Salix humboldtiana Willd. var. ***humboldtiana***	sauce colorado	T	micPh	America	Native	D&P 9514
SAPINDACEAE Juss.						
Cardiospermum halicacabum L. var. ***halicacabum***	globitos	AH	Th scand	Cosmopolite	Native	DP&P 8368
SCROPHULARIACEAE Juss.						
Buddleja cordobensis Griseb.	salvialora	SH	nPh	South America	Native	q. Cantero (2016)

Table 9 (cont.) / Tabla 9 (cont.). Angiospermae - Dicotyledoneae.

IV - ANGIOSPERMAE (= Magnoliophyta) - **DICOTYLEDONEAE** (= Magnoliopsida)						
FAMILY / FAMILIA – *Taxon / Taxón*	**Common name / Nombre vulgar[1]**	**Habit / Hábito**	**Life-form / Forma biológica[2]**	**Geographical origin / Origen**	**Status / Condición[3]**	***Exsiccata selecta*[4]**
SOLANACEAE Juss.						
Capsicum chacoense Hunz.	ají picante	SSH	Ch suff	South America	Native	DP&P 6013
Cestrum parqui L'Hér.	duraznillo negro	SH/SSH	nPh/Ch suff	South America	Native	D&P 9513
Datura ferox L.	chamico	AH	Th sros	Asia	Adventitious	DP&P 6468
Lycium americanum Jacq.	llaullín	SH	nPh	America	Native	C&S 4673 (CORD)
Lycium boerhaviaefolium L. *f.*	oreja de gato, micunu	SH	nPh	South America	Native	DP&P 8914
Lycium chilense Miers ex Bertero var. ***chilense***	llauyín	SH/SSH	nPh/Ch suff	South America	Native	D&P 6145
Lycium chilense Miers ex Bertero var. ***glaberrimum*** Phil.	llauyín	SH/SSH	nPh/Ch suff	South America	Native	DP&F 6525
Lycium gilliesianum Miers	llaullín	SH/SSH	nPh/Ch suff	Argentina	Endemic	DP&C 10766
Lycium infaustum Miers	llaullín, tomatillo	SH/SSH	nPh/Ch suff	Argentina	Endemic	GB& al. 4432 (CORD)
Lycium tenuispinosum Miers var. ***tenuispinosum***	llaullín, yauyín	SH/SSH	nPh/Ch suff	South America	Native	DP&P 6031
Nicotiana glauca Graham	palán-palán	SH/LT	nPh/micPh	South America	Native	D&P 9512
Nicotiana petunioides (Griseb.) Millán		AH	Th scap	South America	Native	EN & al. 8421 (SI)
Sclerophylax arnottii Miers	verdolaga	AH	Th succ	Argentina	Endemic	DP&P 6568
Sclerophylax difulvioi Del Vitto & Petenatti	verdolaga	PH	Hc succ	Argentina	Endemic	D& al. 8067
Sclerophylax kurtzii Di Fulvio		AH	Th succ	Argentina	Endemic	DP&P 6504
Sclerophylax spinescens Miers		AH	Th succ	South America	Native	C&S 4671 (CORD)
Solanum atriplicifolium Gillies ex Nees ab. Esenb. in Meyen		PH/ SSH	Hc scap/Ch suff	South America	Native	D&P 5850
Solanum elaeagnifolium Cav.	quillo	SSH	Ch suff/G rhiz	America	Native	DP&P 8416
Solanum euacanthum Phil.	suriñado	AH	Th rept	South America	Native	DP&P 6052
Solanum hastatilobum Bitter var. ***hastatilobum***		PH	Hc scap	Argentina	Endemic	D&P 6128
Solanum hieronymi Kuntze	pocote	PH	G radg	South America	Native	H&C 16419 (CORD)
Solanum nitidibaccatum Bitter	tomatillo	AH	Th scap	South America	Native	DP&P 6523
Solanum sarrachoides Sendtn.		AH	Th scap	South America	Native	D&P 9542
Solanum triflorum Nutt.	tomatillo	AH	Th scap	America	Native	D&P 9511
Solanum tweedianum Hook.		AH	Th scap	Argentina	Endemic	DP&P 6518
TALINACEAE Doweld						
Talinum polygaloides Gillies ex Arn.		SSH	Ch suff/G tub	South America	Native	D&P 5890
TAMARICACEAE Link						
Tamarix ramosissima Ledeb.		SH/LT	nPh/micPh	Eurasia	Naturalized	D&P 9633
TURNERACEAE DC.						
Turnera sidoides L. subsp. ***pinnatifida*** (Juss. ex Poir.) Arbo	yerba del ciervo	PH	Hc scap/G radg	South America	Native	D&P 8905

Table 9 (cont.) / Tabla 9 (cont.). Angiospermae - Dicotyledoneae.

IV - ANGIOSPERMAE (= Magnoliophyta) - **DICOTYLEDONEAE** (= Magnoliopsida)						
FAMILY / FAMILIA – *Taxon / Taxón*	**Common name / Nombre vulgar[1]**	**Habit / Hábito**	**Life-form / Forma biológica[2]**	**Geographical origin / Origen**	**Status / Condición[3]**	***Exsiccata selecta*[4]**
URTICACEAE Juss.						
Parietaria debilis G.Forst.		AH	Th scap	South America	Native	DP&P 6469
VERBENACEAE J.St.-Hil.						
Acantholippia seriphioides (A.Gray) Moldenke	tomillo macho	SSH	Ch suff	Argentina	Endemic	D&P 9634
Aloysia gratissima (Gillies & Hook. ex Hook.) Tronc. var. ***gratissima***	usillo	SH	nPh	America	Native	D&P 9501
Aloysia ovatifolia Moldenke		SSH	Ch suff	Argentina	Endemic	DP&P 8113
Aloysia polystachya (Griseb.) Moldenke	burrito, té de burro	SH	nPh	South America	Native	DP&P 8923
Glandularia aristigera (S. Moore) Tronc.	margarita celeste	SSH	Ch suff	South America	Native	DP&C 10773
Glandularia mendocina (Phil.) Covas & Schnack	verbena	SSH	Ch suff	Argentina	Endemic	R 8151 (MERL)
Glandularia tenera (Spreng.) Cabrera	verbena	SSH	Ch rept	South America	Native	MS 2511 (CORD)
Glandularia subincana Tronc.	verbena	PH	Ch suff	South America	Native	G 226 (SI)
Glandularia venturii (Moldenke) Botta	primavera	PH/SSH	Ch suff	Argentina	Endemic	DP&F 6553
Junellia hookeriana (Covas & Schnack) N.O´Leary & P.Peralta var. ***hookeriana***	té de burro	SH-SSH	nPh/Ch suff	Argentina	Endemic	Báez 97 (SI)
Lantana balansae Briq.		SH/SSH	nPh/Ch suff	South America	Native	q. Cantero (2016)
Lantana grisebachii (Spreng.) Troncoso var. ***grisebachii***	hierba malva	SH/SSH	nPh/Ch suff	South America	Native	DP&P 6482
Lantana megapotamica (Spreng.) Tronc.		SH	nPh	South America	Native	DP&C 10771
Lantana xenica Moldenke		SH	nPh	Argentina	Endemic	DP&F 6534
Lippia integrifolia (Griseb.) Hieron	incayuyo	SH	nPh	South America	Native	DP&P 6089
Lippia salsa Griseb.		SH	nPh	Argentina	Endemic	DP&P 8372
Lippia turbinata Griseb.f. ***turbinata***	poleo	SH	nPh	South America	Native	D&P 9402
Mulguraea aspera (Gillies & Hook. ex Hook.) N.O'Leary & P.Peralta		SH	nPh	South America	Native	DP&P 6496
Parodianthus ilicifolius (Moldenke) Tronc.		SH/SSH	nPh/Ch suff	Argentina	Endemic	RB&M 303 (SI)
Phyla nodiflora (L.) Greene var. ***minor*** (Gillies & Hook. ex Hook.) N.O'Leary & P.Peralta		PH	Ch rept	South America	Native	DP&P 8081
Xeroaloysia ovatifolia (Moldenke) Tronc.		SSH	Ch suff	Argentine	Endemic	RB&M 304 (SI)
ZYGOPHYLLACEAE R.Br.						
Bulnesia retama (Gillies ex Hook. & Arn.) Griseb.	retamo	SH/LT	nPh/micPh	South America	Native	DP&P 6006
Kallstroemia tucumanensis Descole, O´Donell & Lourteig		AH	Th rept	South America	Native	DP&P 6091

Table 9 (cont.) / Tabla 9 (cont.). Angiospermae - Dicotyledoneae.

IV - ANGIOSPERMAE (= Magnoliophyta) - **DICOTYLEDONEAE** (= Magnoliopsida)						
FAMILY / FAMILIA – *Taxon / Taxón*	**Common name / Nombre vulgar[(1)]**	**Habit / Hábito**	**Life-form / Forma biológica[(2)]**	**Geographical origin / Origen**	**Status / Condición[(3)]**	***Exsiccata selecta*[(4)]**
Larrea cuneifolia Cav.	jarilla sur y norte	SH	nPh	Argentina	Endemic	DP&P 6437
Larrea divaricata Cav.	jarilla, jarilla hembra	SH	nPh	South America	Native	DP&P 8432
Plectrocarpa tetracantha Gillies ex Hook. & Arn.	mancapotrillo	SH	nPh/G rhiz	Argentina	Endemic	D&P 5877
Porlieria microphylla (Baill.) Desc., O'Donell & Lourt.	cucharero	SH	nPh	South America	Native	D&P 9510
Tribulus terrestris L.	roseta	AH	Th rept	Cosmopolite	Adventitious	DP&P 8437

References. For tables 6 to 9.

Referencias. Para las tablas 6 a 9.

(1) Common name: the most widespread in the region is indicated **/ Nombre común**: se indica el más difundido en la región. - **(2) Life-form** after / **Forma biológica** según / Raunkiaer (1934) / modified / modificada (Mueller-Dombois and Ellenberg 1974 and others / y otros). - **(3) Status** considering the Argentine territory **/ Condición** establecida en relación al territorio argentino. - **(4) Voucher specimen** deposited in UNSL (unless another herbarium is indicated in brackets) / **Ejemplar documental** depositado en UNSL (a menos que se indique otro herbario entre paréntesis). - **n.n.**: No number / sin número.- **q.**: quoted by / citado por.

Habit / Hábito: **AH**: Annual herb / Hierba anual. - **BH**: Biennial herb / Hierba bienal. - **L**: Lianoid / Liana. - **LT**: Little tree / Arbolito. - **PH**: Perennial herb / Hierba perenne. - **SH**: Shrub / Arbusto. - **SSH**: Subshrub / Subarbusto. - **T**: Tree / Árbol. - **WH**: Woody hemiparasitic / Hemiparásito leñoso.

Collector Abbreviations / Abreviaturas de los colectores: A: D.L. Anderson. – **AR**: A. Roatta.- **A&A**: A.M. Anton & M.E. Astegiano. - **A& al.**: D.L. Anderson *et al.* - **AB**: A.E. Burkart. - **AAC**: A.A. Cocucci. - **AC**: A. Castellanos. - **BSV**: B.S. Vuilleumier. - **C&S**: A.A. Cocucci & A.N. Sérsic. – **D&BR**: L.A. Del Vitto & A.J. Belgrano R. - **D&P**: L.A. Del Vitto & E.M. Petenatti. - **DP&C**: L.A. Del Vitto, E.M. Petenatti & P. Cardoso-Schiavi. - **DP&F**: L.A. Del Vitto, E.M. Petenatti & L.I. Ferraro. - **DP&P**: L.A. Del Vitto, E.M. Petenatti & M.E. Petenatti. - **DP&S**: L.A. Del Vitto, E.M. Petenatti & L. Svetaz. - **ED**: T.E. Di Fulvio. - **EH**: E. Haene. - **G**: J.R. Guiñazú. – **GB& al.**: G.E. Barboza *et al.*- **H&C**: A.T. Hunziker & A.E. Cocucci. - **H&M**: A.T. Hunziker & P. Maldonado. - **JB**: J.R. Báez. - **JS**: J.L. Sáenz. - **K**: R. Kiesling. - **K&C**: A. Krapovickas & C.L. Cristóbal. - **MS**: M. Sayago. - **N& al.**: E.G. Nicora *et al.* – **P& al**.: J. Pensiero *et al.* - **R**: F.A. Roig. - **RB&M**: A.D. Rotman, S.M. Botta & M.E. Múlgura. - **RL**: A. Ruiz Leal.

Conclusions

The "Sierra de las Quijadas" National Park and the surrounding National Reserve comprise 150,252 ha. They are located at the NW end of the province of San Luis (Argentina). Arid mountain climate predominates, usually dry and warm. It preserves a sample of the Chaco-Monte ecotone, with the typical communities of the ecoregions called "Dry Chaco" and "Monte" (both "Monte of plains and plateaus" and "Monte of Sierras and bolsons"). In the diverse environments (low mountains, foothills, bad-lands, depressions and endorheic basins, temporary lagoons and the flood plain of the Desaguadero river) there are mixed forests, shrub steppes of orophilic and halophilic plant communities, copses of phreatophyte, galleries of tall shrubs, brushwoods, "rings" of halophytes, "pajonales", rushes and reed beds in flood areas.

Nowadays, the vascular flora of the SQNP includes 356 species (plus 99 infraspecific taxa), that is, 3.6% of the total from Argentina. These species are distributed in 208 genera belonging to 58 plant families. The vast majority are Dicots (74%) and Monocots (25%), to which 2 species of ferns and 3 species of *Ephedra* are added. The best represented families are Poaceae (16.3% of the total species), Asteraceae (13.8%), Fabaceae (8.7%), Solanaceae (6.7%) and Verbenaceae (5.9%), while Bromeliaceae, Chenopodiaceae, Cactaceae, Malvaceae and Amaranthaceae contribute with around 3-5% each. Meanwhile, Zygophyllaceae, Euphorbiaceae, Boraginaceae Convolvulaceae, Apocynaceae, Nyctaginaceae and Portulacaceae only reach 1.4-2% each of the species of the Park. Another 18 families include 2 to 4 species each (11.2%), and the other 23 families have only one species each (6.5% of the total species).

The specific/infraspecific diversity of each genus is low. Four of them (*Tillandsia*, *Prosopis*, *Gomphrena* and *Solanum*) add 55 taxa (12% of the Park flora), while the following 15 genera are represented by 9 to 5 taxa each (21%). Finally, most genera (*i.e.* 161) are represented only by 1 or 2 taxa each, totaling 40% of the studied flora.

Four species are endemic unique to the Park and its surroundings: *Atriplex quixadensis*, *Senecio hualtaranensis*, *Sclerophylax difulvioi* and *Gomphrena colosacana* var. *andersonii*. Another 116 endemic Argentine species are present in the Park. As far as we know, and including the previous four, some live in very restricted areas. In total they represent *ca*. 33% of the vascular flora of the Park, and 6% of the endemic plants of the whole country, including *Halophytum ameghinoi*, a noteworthy species restricted to western Argentina; it is the unique representative of the only endemic family in this country, Halophytaceae.

These endemic taxa suffer a different degree of threat: 3 are included in the category of critically endangered (CR), 3 other are endangered (EN), 10 vulnerable (VU), 25 near threatened (NT) and 75 as least concern (LC). Many of the endemisms require immediate and continuous protection, because they are grouped in small populations, in places with both natural and anthropic environmental disturbance.

The diversity of habitats and microhabitats allows the existence of the majority of life-forms types and subtypes, especially phanerophytes and hemicryptophytes, with *ca.* 25% of the taxa each, mostly shrubs and low trees for the former and caespitose and scapose perennial herbs for the last. They are followed by chamaephytes (22%, mostly subshrubs) and therophytes (16%). Together they reveal a remarkable adaptation to the prolonged dry season.

Additionally, the presence of 8 taxa not yet reported for the native vascular flora of the province of San Luis is documented: *Adesmia cordobensis* Burkart var. *cordobensis* (Fabaceae); *Aloysia polystachya* (Griseb.) Moldenke and *Glandularia aristigera* (S. Moore) Tronc. (Verbenaceae); *Gomphrena boliviana* Moq. f. *boliviana* (Amaranthaceae); *Salsola kali* L. var. *hirsuta* Hornem. and *S. kali* L. var. *tragus* (L.) Moq. (Chenopodiaceae); *Tillandsia andicola* Gillies ex Baker and *T. angulosa* Mez (Bromeliaceae).

References

1. Anderson, D. L.; Del Águila, J. A.; Bernardón, A. E. 1970. Las formaciones vegetales de la provincia de San Luis. Revista de Investigaciones Agropecuarias INTA, Ser. 2. Biología y Producción Vegetal. 8(3): 153-182.
2. Anton, A. M.; Zuloaga F. O. 2018. Flora Argentina. http://www.floraargentina.edu.ar. Accessed Oct. 15, 2018.
3. APN (Administración de Parques Nacionales). 1991. El Proyecto Parque Nacional Sierra de las Quijadas (Provincia de San Luis, República Argentina). Buenos Aires. Secretaría de Agricultura, Ganadería y Pesca. 102 p.
4. APN (Administración de Parques Nacionales). 2006. Plan de Manejo, Parque Nacional Sierra de las Quijadas. Córdoba. Argentina. Administración de Parques Nacionales Regional Zona Centro. 233 p. [Resol. HD 77-06, https://www.sib.gov.ar].
5. Arcucci, A. B.; Prámparo, M. B.; Codorniú, L. S.; Giordano, P.; Castillo, E.; Puebla, G.; Mego, N.; Gomez, M.; Bustos Escalona, E. 2015. Biotic assemblages from Early Cretaceous lacustrine systems in the San Luis Basin, mid-western Argentina. Boletín Geológico y Minero. 126(3): 109-128.
6. Argentina. 1991. Ley Nacional N° 24015. Buenos Aires. Boletín Oficial de la República Argentina n° 27291. p. 1, 24/XII/1991 [Creación del P. N. Sierra de las Quijadas ratificando Convenio entre San Luis y Administración de Parques Nacionales].
7. Ayarragaray, M.; Demaio, P. H.; Superina, M.; Tessaro, F.; Denapole, L.; Heider, J. A.; Abdelahad, M.; Gonzalez, A.; Gomez-Vinassa, L. 2015. Estado de conservación de la flora endémica de San Luis, Argentina. En: II Congreso Internacional de Ciencia y Tecnología Ambiental. Buenos Aires. p. 128.
8. Bonaparte, J. F. 1970. Pterodaustro guinazui gen. et sp. nov. Pterosaurio de la Formación Lagarcito, Provincia de San Luis, Argentina y su significado en la geología regional (Pterodactylidae). Acta Geológica Lilloana. 10: 209-225.
9. Braun-Blanquet, J. 1950. Sociología vegetal: estudio de las comunidades vegetales. Buenos Aires. Acme Agency.
10. Burkart, R.; Ruiz, L. 1994. El sistema nacional de Áreas Naturales Protegidas de la Argentina: Diagnóstico de su patrimonio natural. Buenos Aires. Administración de Parques Nacionales. 129 p.
11. Burkart, R.; Bárbaro, N. O.; Sánchez, R. O.; Gómez, D. A. 1999. Ecorregiones de la Argentina. Buenos Aires. Administración de Parques Nacionales. 42 p.
12. Cabido, M.; González, C.; Acosta, A.; Díaz, S. 1993. Vegetation changes along a precipitation gradient in Central Argentina. Vegetation. 109: 5-14.
13. Cabrera, A. L. 1976. Regiones fitogeográficas argentinas. En: Kugler, W. Enciclopedia Argentina de Agricultura y Jardinería. 2° ed. Vol. 2 fasc. 1: 1-85.

14. Cabrera, A. L.; Willink, A. 1980. Biogeografía de América Latina. Monografía Nº 13, Serie Biología. 2ª. Edición. Washington, D.C. Secretaría General de la Organización de los Estados Americanos. 122 p.
15. Chase, M. W.; Christenhusz, M. J. M.; Fay, M. F.; Byng, J. W.; Judd, W. S.; Soltis, D.; Mabberley, D. J.; Sennikov, A. N.; Soltis, P. S.; Stevens, P. F. 2016. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: Angiosperm Phylogeny Group IV. Botanical Journal of the Linnean Society. 181: 1-20.
16. CITES (Convención sobre el Comercio Internacional de Especies Amenazadas de Fauna y Flora Silvestres). 2017. Apéndices I, II y III en vigor a partir del 4 de octubre de 2017. https://cites.org/sites/default/files/esp/app/2017/S-Appendices-2017-10-04.pdf. Accessed March 3, 2019.
17. COFEMA (Consejo Federal del Medio Ambiente, Argentina). 2015. Resol. 308/15, declarando de interés ambiental federal las acciones de restauración ambiental del "Sitio Ramsar Lagunas de Guanacache, Desaguadero y del Bebedero". http://cofema.ambiente.gob.ar/?aplicacion=normativa&IdNorma=1530&IdSeccion=32. Accessed March 20, 2018.
18. Delgado, M. J.; Orquín, L.; Losada, D.; Gabutti, E.; Bertón, J. 1983. Efectos de la desertización en los departamentos Ayacucho y Belgrano, Provincia de San Luis, República Argentina. IDIA (INTA). Supl. 36: 264-268.
19. Del Vitto, L. A.; Petenatti, E. M.; Ferraro, L.; Petenatti, M E. 1991. Flórulas vascular y liquénica del Parque Provincial Sierra de Las Quijadas. En: XXIII Jornadas Argentinas de Botánica, Sociedad Argentina de Botánica. Bariloche.
20. Del Vitto, L. A.; Múlgura, M. E.; Petenatti, E. M. 1993a. Una nueva especie de Atriplex (Chenopodiaceae) de la Argentina. Hickenia. 2(17): 77-80.
21. Del Vitto, L. A.; Petenatti, E. M.; Petenatti, M. E. 1993b. Catálogo preliminar de la flora del Parque Nacional Sierra de las Quijadas. Serie Técnica del Herbario de la Universidad Nacional de San Luis. 8: 1-43.
22. Del Vitto, L. A.; Petenatti, E. M.; Nellar, M. M.; Petenatti, M. E. 1995. Las áreas naturales protegidas de San Luis, Argentina. Multequina. 3: 141-156.
23. Del Vitto, L. A.; Petenatti, E. M. 2001. Una nueva especie de Sclerophylax (Sclerophylacaceae) para la flora argentina. Kurtziana. 29(1): 1-4.
24. Del Vitto, L. A.; Petenatti, E. M.; Petenatti, M. E. 2011. Diversidad vegetal y status de conservación de la flora de San Luis. En: M. M. Nellar, La conservación de la naturaleza en la provincia de San Luis. San Luis, Argentna. Museo G. E. Hudson. p. 57-89.
25. Frasinelli, C. A.; Veneciano, J. H.; Belgrano Rawson, A. J.; Frigerio, K. L. 2002. Sistemas de cría y recría de bovinos. Caracterización de la ganadería de San Luis. IDIA (INTA). 21, 2(2): 79-82.
26. Gómez Vinassa, M. L.; Núñez, M. B. 2016. Dieta estacional de guanacos (*Lama guanicoe*) y burros ferales (*Equus asinus*) en un ambiente semiárido de San Luis, Argentina. Ecología Austral 26: 178-188.
27. González Díaz, E. 1981. Geomorfología. En: Relatorio del VIII Congreso de Geología Argentina. Buenos Aires. Argentina. p. 193-236.
28. Guerreiro, A.; Baldoni, J. C.; Brigada, A. M. 2005. Herpetofauna de la Sierra de las Quijadas (San Luis, Argentina). Gayana. 69(1): 6-9.
29. Guiñazú, J. R. 1972. Proyecto de la creación de un monumental Parque en la región de la Sierra de las Quijadas en el noroeste de la Provincia de San Luis. Sus fundamentos. Informe inédito. Buenos Aires. Biblioteca de la Administración de Parques Nacionales. 12 p.
30. Haene, E. 2007. Parque Nacional Sierra de las Quijadas. En: AS Di Giacomo *et al.* (eds.), Áreas importantes para la conservación de las aves en Argentina. Sitios prioritarios para la conservación de la biodiversidad. CD-ROM. Buenos Aires. Aves Argentinas/Asociación Ornitológica del Plata. p. 400-101.
31. Haene, E.; Gil, G. 1991. El proyectado Parque Nacional Sierra de las Quijadas (Provincia de San Luis, República Argentina). Buenos Aires. Administración de Parques Nacionales. Informe inédito. 101 p.
32. Heinonen Fortabat, S.; Chebez, J. C. 1997. Los mamíferos de los Parques Nacionales de la Argentina. Buenos Aires. Literature of Latin America (LOLA).
33. IUCN (International Union for Consevation of Nature). 2012. Guidelines for Application of IUCN Red List Criteria at Regional and National Levels: Version 4.0. Gland, Switzerland and Cambridge, UK. International Union for Conservation of Nature. Iii, 41p.
34. IUCN (International Union for Consevation of Nature). 2019. The IUCN Red List of Threatened Species. https://www.iucnredlist.org/. Accessed: April 11, 2019.
35. Literas, S.; Rodríguez, M.; Pereyra, E.; Roig-Juñent, S. 2019. Catalog of the type material in the Herpetology Collection of the Instituto de Biologia Animal. Revista de la Facultad de Ciencias Agrarias. Universidad Nacional de Cuyo. Mendoza. Argentina. 51(1): 191-204.
36. López-Arbarello, A.; Codorniú, L. 2007. Semionotids (Neopterygii, Semionotiformes) from the Lower Cretaceous Lagarcito Formation, San Luis Province, Argentina. J. Vertebrate Paleontology. 27(4): 811-826.
37. Maero, I. S.; Rivarola, D.; Tognelli, G. 2007. Cartografía morfodinámica para el Parque Nacional Sierra de las Quijadas, San Luis, Argentina. Gestión Ambiental. 14: 57-77.
38. Marconi, P.; Lisi, J.; Canevari, P. 1980. Proyecto del Parque Nacional Sierra de las Quijadas. Buenos Aires. Administración de Parques Nacionales. Informe inédito.

39. Molinari, R. 2000. Manejo de Recursos Culturales, Parque Nacional Sierra de las Quijadas, Provincia de San Luis, Argentina. Buenos Aires. Administración de Parques Nacionales. 20 p.
40. Morello, J. H. 1958. La provincia fitogeográfica del Monte. Opera Lilloana. 2: 5-115.
41. Morello, J. H.; Matteucci, S.; Rodríguez, A. 2012. Ecorregiones y complejos ecosistémicos argentinos. Buenos Aires. Orientación Gráfica Editora.
42. Mueller-Dombois, D.; Ellenberg, H. 1974. Aims and methods of vegetation ecology. New York. Wiley.
43. Natale, E. S. 2006. Plan de Manejo [del] Parque Nacional Sierra de Las Quijadas. Córdoba. Administración de Parques Nacionales Delegación Regional Centro.
44. Natale, E. S. 2012. Zonificación del Parque Nacional Sierra de las Quijadas (San Luis-Argentina). Revista Latinoamericana de Conservación. 2(2) - 3(1): 73–77.
45. Oyarzábal, M.; Clavijo, J.; Oakley, L.; Biganzoli F., Tognetti, P.; Barberis, I.; Maturo, H.; Aragón, R.; Campanello, P.; Prado, D.; Oesterheld, M.; León, R. 2018. Unidades de vegetación de la Argentina. Ecología Austral. 28: 40-63.
46. Peña Zubiate, C. A.; Anderson, D. L.; Demmi, M. A.; Sáenz, J. L.; D'Hiriart, A. 1998. Carta de suelos y vegetación de la provincia de San Luis. San Luis. Argentina. SAGPyA/INTA/Gobierno de la Provincia de San Luis.
47. Peña Zubiate, C. A.; d´Hiriart, A. 2009. Carta de suelos de la República Argentina. Hoja Villa General Roca, Provincia de San Luis. Escala 1:200.000. San Luis. Argentina. INTA/Gobierno de San Luis.
48. Pérez Sánchez Vacca, S. 2004. Personalidades de San Luis que dejaron huella. J. R. Guiñazú, p. 34-56. http://biblioteca.sanluis.gov.ar/Publicaciones/PERSONALIDADES%20DE%20SAN%20LUIS%20QUE%20DEJARON%20HUELLAS.pdf. Accessed: Jun. 28, 2016.
49. Petenatti, E. M.; Ariza Espinar, L.; Del Vitto, L. A. 1994. Una nueva especie de Senecio (Asteraceae) para la Flora argentina. Kurtziana. 23: 89-92.
50. Petenatti, M. E.; Ferraro, L. I.; Petenatti, E. M.; Del Vitto, L. A. 2001. Catálogo preliminar de la flora liquénica del Parque Nacional Sierra de las Quijadas, San Luis, Argentina. Boletín de la Sociedad Argentina de Botánica 36 (Supl.): 12
51. PlanEAr (Plantas Endémicas de la Argentina). 2015-2019. Plantas Endémicas de la Argentina. www.planear.org. Accessed: April 4, 2019.
52. Ramonell, C.; Iriondo, M.; Krömer, R. 1992. Quinta Reunión de Campo, CADINQUA. San Luis. Argentina. Departamento de Geología y Minería de la Universidad Nacional de San Luis.
53. Ramsar (Convención de Ramsar). 2018. Humedales de importancia internacional (Sitios Ramsar) https://www.ramsar.org/es/acerca-de/humedales-de-importancia-internacional-lossitios-ramsar-0. Accessed: March 2, 2018.
54. Raunkiaer, C. 1934. The life forms of plants and statistical plant Geography. London. Oxford University Press.
55. Rivarola, D. 1997. El Parque Nacional Sierra de las Quijadas y sus Recursos Naturales. San Luis. Universidad Nacional de San Luis. 30 p.
56. Rivarola, D.; Spalletti, L. 2006. Modelo de sedimentación continental para el rift cretácico de la Argentina central: ejemplo de la sierra de las Quijadas, San Luis. Revista de la Asociación Geológica Argentina. 61(1): 63-80.
57. Roig, F. A. 1982. Cuyo. En: Grassi, M., Simposio "Conservación de la vegetación natural en la República Argentina". San Miguel de Tucumán: Fundación Lillo/Sociedad Argentina de Botánica. p. 61-100.
58. Roig, F. A.; Roig, V. G. 1969. Nuevos datos sobre la corriente florística chaqueña en Mendoza y observaciones sobre Aspidosperma quebracho-blanco en el límite SE de su dispersión. Revista de la Facultad de Ciencias Agrarias. Universidad Nacional de Cuyo. Mendoza. Argentina. 15: 46-52.
59. Roig, F. A.; González Loyarte, M. M.; Martínez Carretero, E.; Berra, A.; Wuilloud, C. F. 1992. La travesía de Guanacache, tierra forestal. Multequina. 1: 83-91.
60. Roig, F. A.; Roig, M.; Roig, V.; Roig, A.; Roig, E. 1999. Guanacache. Fidel Roig Matóns, pintor del desierto. Mendoza, Argentina. EDIUNC. 137 p.
61. Roig, F. A.; Roig-Juñent, S.; Corbalán, V. 2009. Biogeography of the Monte Desert. Journal of Arid Environments. 73: 164-172.
62. Sáenz, C. A.; Colazo, J. C. 2015. Gestión de suelo y agua en sistemas productivos de la provincia de San Luis. Buenos Aires. Instituto Nacional de Tecnología Agropecuaria (INTA).
63. San Luis. 2009. Ley IX-0697-2009 "De Bosques Nativos de la Provincia de San Luis". http://www.ministeriomacp.sanluis.gov.ar/wp-content/uploads/2016/08/LEY-IX-0697-2009-BOSQUE-NATIVO.pdf. Accessed: March 2, 2016.
64. SIB/APN (Sistema de Información de Biodiversidad/Administración de Parques Nacionales). 2018. Parque Nacional Sierra de las Quijadas. https://sib.gob.ar/#!/area-protegida/parque-nacional-sierra-de-las-quijadas. Accessed: Oct. 9, 2018.
65. SiFAP (Sistema Federal de Áreas Protegidas, Argentina). 2019. Áreas protegidas. Sistema Federal https://www.argentina.gob.ar/ambiente/tierra/protegida/sifap. Accessed: Feb. 4, 2019.
66. Sosa, H. J. 2006-2008. [Lagunas de Guanacache, Desaguadero y del Bebedero]. Ficha informativa de los Humedales de Ramsar (FIR). https://rsis.ramsar.org › RISapp › files › RISrep. Accessed: Aug. 22, 2017.
67. Sosa, H. J. 2012. Restauración y conservación del Sitio Ramsar Lagunas de Guanacache, Desaguadero y del Bebedero. Buenos Aires. Fundación Humedales/Wetlands International. viii, 1-53.

68. Sosa, H. J.; Vallve, S. 1999. Lagunas de Guanacache (Centro-Oeste de Argentina). Procedimiento de inclusión a la Convención sobre los Humedales (RAMSAR, 71). Multequina. 8: 71-85.
69. Stevens, P. F. 2001. Onwards. Angiosperm Phylogeny Website. Version 14, July 2017 [continuously updated since]. http://www.mobot.org/MOBOT/research/APweb/. Accessed: Nov. 5, 2018.
70. USDA (Unites States Department of Agriculture). 2014. Claves para la taxonomía de suelos. 12° ed. Soil Survey Staff. USDA. https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051546.pdf. Accessed: Aug. 25, 2019.
71. Van Wambeke, A. C.; Scoppa, C. O. 1976. Los regímenes hídricos y térmicos de los suelos argentinos calculados sobre la base de los registros climáticos. IDIA (INTA). Supl. 33: 388-401.
72. Villagra, P. E.; Roig, F. A. 1999. Vegetación de márgenes del río Mendoza en su zona de divagación (Mendoza, Argentina). Kurtziana. 27: 309-317.
73. Walter, H.; Lieth, H. 1967. Klimadiagramm-Weltatlas. Jena. G. Fischer.
74. Zamorano, M. 1950. Las desaparecidas balsas de Guanacache. Boletín de Estudios Geográficos. Mendoza. 8: 165-184.
75. Zuloaga, F. O.; Morrone, O.; Rodríguez, D. 1999. Análisis de la diversidad en plantas vasculares de la 74. Argentina. Kurtziana. 27(1): 17-167.

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