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Research

Biocultural homogenization in elementary education degree students from contrasting ecoregions of Chile

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ABSTRACT. Biocultural homogenization is a wicked problem that implies the loss of biological and cultural diversity at different scales. It is promoted by globalized one-dimensional ways of thinking that ignore the biophysical and cultural singularities of the heterogeneous regions of the planet. In Chile, we find ecoregions as diverse as the arid Norte Grande, the semi-arid Mediterranean Metropolitan region, and the temperate rainforests in the south. We studied the perceptions that elementary education degree students (EEDS) have regarding the flora and fauna (co-inhabitants), their environments (habitats), and their daily customs or activities (habits) in these three ecoregions. We distributed 72 questionnaires to students from 3 universities in 2021, asking them about co-inhabitants, habitats, and habits. We identified similarities and differences between the responses. Similarities were associated with biocultural homogenization processes evidenced by the prevalence of vertebrate animals and vascular plants, or introduced species, such as domestic animals, and cultivated plants for edible, ornamental, and medicinal purposes. Differences were associated with biocultural conservation processes such as the collection of native species of mushrooms, plants and animals for food use, or the knowledge of ritual celebrations typical of their localities. We propose that teaching study programs should aim to redirect biocultural homogenization processes toward biocultural conservation processes. That way teachers can play a key role in teaching future generations to learn and value both local and scientific knowledge about the diversity of co-inhabitants, habitats, and the life habits in each of their ecoregions.

Key Words: *biocultural ethics; biodiversity perceptions; everyday aesthetics; extinction of experience; teacher education*

INTRODUCTION

Biocultural diversity emerges from complex and dynamic relationships between human cultural and biological diversity (Bridgewater and Rotherham 2019, Hanspach et al. 2020). However, a growing number of studies have documented a growing disconnect between young students and the biological and cultural diversity of their localities (Rozzi et al. 2001, Østergaard 2017, Medina et al. 2020). The disconnect of students and, more broadly, citizenry with biocultural diversity is a recurring problem in today's society and has been named "extinction of experience" (Pyle 1993, Poole 2018). Nowadays, fewer and fewer people have a daily, direct contact with nature. This lack of experience has negative consequences that affect health, reduce the affective connection with nature, and weaken people's pro-environmental attitudes and behaviors (Soga et al. 2015, Soga and Gaston 2016). Extinction of experience may also cause a reduction in people's abilities to perceive biodiversity (Shwartz et al. 2014) or know local native biodiversity (Campos et al. 2012, Bermudez et al. 2017, 2018, Almeida et al. 2020). The causes for the extinction of experience are multiple and include formal education activities taking place in closed environments inside schools (Rozzi 2013), as well as processes of urbanization that limit the contact of students and citizens with the biocultural diversity of their regions (Miller 2005, Soga et al. 2015, Poole 2018). The absence of free unstructured time in daily lives is another possible cause of this problem (Louv 2010). The extinction of experience is both a driver and a product of biocultural homogenization and would affect people's direct, experiential, and sensory knowledge of habitats and co-inhabitants (Ibarra et al. 2020).

Biocultural homogenization involves "complex and interwoven losses of biological and cultural diversity" (Rozzi 2018a:22). Biocultural homogenization is related to globalized one-dimensional ways of thinking, which ignore biophysical and cultural particularities of heterogenous regions of the planet. On a global scale, biocultural homogenization favors a small set of species, languages, and cultures to the detriment of others, which are excluded, oppressed, or exterminated (Maffi 2005, Rozzi 2013). Some examples of biocultural homogenization are: (1) the loss of native cultural and biological diversity due to urbanization processes and the prioritization of exotic species in urban green spaces (Campos et al. 2012, Celis-Diez et al. 2017, Jin et al. 2020), (2) the reduction of diversity in the traditional diets of Indigenous populations as a result of changes in systems of livelihood and the prevalence of Western diets (Barreau et al. 2019), or (3) the omission of native flora in formal education (Medina et al. 2020). These examples show how informal education (e.g., daily experiences, family life) and formal education (e.g., school, university) are critically affected by biocultural homogenization.

We report on our study aimed at evaluating how eventual processes of biocultural homogenization are developing in three contrasting ecoregions in Chile. We do so by examining patterns of perceptions among elementary education degree students (EEDS) from the three regions. Elementary education degree students are undergraduate students seeking an elementary school teaching degree. In Chile, elementary school teachers teach various subjects as general educators and spend an average of 5 hours a day with 6-to-12-year-old students, which can have a decisive influence on students' perceptions and valuations of their

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co-inhabitants, habitats, and habits. Their training is based on the guidelines provided by the Ministry of Education regarding the knowledge and competences teachers should have: Guiding Standards for Elementary Education Programs (Ministerio de Educación 2012) and the Framework for Good Teaching (Ministerio de Educación 2021). Disciplinary contents follow international guidelines, which allow the comparison of Chilean students' performance to that of other Organisation for Economic Co-operation and Development (OECD) nations. However, addressing environmental and sustainability issues is still a challenge for Chilean teachers (Condeza-Marmentini and Flores-González 2019) and the Ministry of Education that provides the guidelines.

To study how processes of biocultural homogenization are developing among EEDS, we adopted the conceptual framework of biocultural ethics that values the vital and reciprocal links between "co-inHabitants, Habitats, and Habits" (the 3Hs model; Rozzi 2013, Tauro et al. 2021). The term co-inhabitant refers to the various beings (human and other-than-human) that share a habitat. These co-inhabitants are viewed as subjects with agency who construct their identities and constitute habitats through habits of reciprocity and complementarity (Rozzi 2018a, Ibarra et al. 2022). Habitats include biophysical, cultural (symbolic-linguistic), and institutional dimensions in socio-political-technological contexts (Rozzi 2018a). These dimensions consider a plurality of worldviews, forms of social organization, and governance that influence the interactions between humans and nature. Habits refer to the ways of living, customs, and actions of human and other-than-human co-inhabitants, which often depend on the conservation of habitats (Rozzi 2018a). For this reason, it is critical to assess the degree in which EEDS, the future teachers of new generations, perceive and value the diversity of co-inhabitants and habitats in their respective regions. In particular, the daily life habits, knowledges, and perceptions these university students have about the biocultural diversity of their regions needs to be examined. Do these knowledges and perceptions differ among EEDS from contrasting regions in Chile (i.e., a desert in Norte Grande, a large city surrounded by agricultural areas in the Mediterranean center, and a temperate rainforest region in the south)? Or will they have similar knowledges and perceptions?

Perception and education

We consider perception as a pre-reflexive and pre-language way of knowing based on the body in interrelation with the world, which inextricably combines receptivity and spontaneity (Merleau-Ponty 1962, Ingold 2000). Therefore, it is not possible to speak of a "pure" perception, but rather of a perceptual experience always linked to the biological and cultural context of the perceiver. Perception plays an important role in education. At school students learn how and what to perceive, explicitly or implicitly (Marini 2021) and this affects their knowledges. This can hold decisive influence over the phenomenon of biocultural homogenization (Rozzi 2013). The set of experiences that shape everyday perceptions acts as a sometimes-imperceptible backdrop, from which a subject interacts, understands, and inhabits the world by making decisions on a daily basis (Saito 2017), favoring, or not, the process of biocultural homogenization.

Today it is undeniable that children's perceptions and knowledges of their local environments are guided not only by formal education (school) but also by informal education, such as the information they receive from the Internet, books, zoos, television, and other media (Pergams and Zaradic 2006, Wason-Ellam 2010, Patrick and Tunnicliffe 2011, Campos et al. 2012, Barrutia et al. 2022, Hooykas et al. 2022). This information often focuses on "wilderness" far removed from their local experiences (Ballouard et al. 2011, Payne 2014, Almeida et al. 2020). Often children's books also contribute to this decontextualization by presenting animal characters engaged in human activities, disconnected from their habitats and habits (Hooykaas et al. 2022). In this way, formal and informal education often contribute to biocultural homogenization. To offset biocultural homogenization, some authors propose strengthening sensitivity and "groundedness" in sustainability education (Østergaard 2017) or connecting the global social-environmental challenges with local practices and possibilities through a "glocal" approach (Murga-Menoyo and Novo 2017). A first step in reversing biocultural homogenization processes would be to make the existing perceptions about biological and cultural diversity in the education of new teachers visible, assess whether there are biases and preferences for a narrow number of co-inhabitants, and question the potential consequences of these biases and preferences on the co-inhabitant communities in each place (Saito 2010, 2017, 2018, Poole 2018).

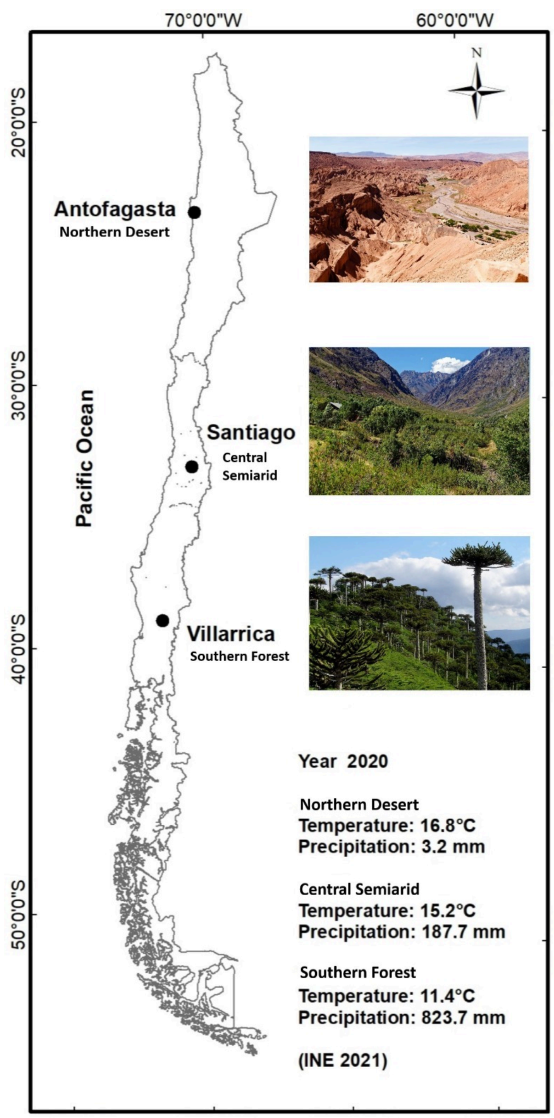
Biases in perceptions and valuations of biodiversity also affect school textbooks, scientific and humanities research, citations, and dissemination or funding for biological conservation, which mainly favor vertebrates (Bonnet et al. 2002, Clark and May 2002, Fjellstrom 2002, Hecnar 2009, Taborsky 2009, Martín-López et al. 2011, Donaldson et al. 2016, McRae et al. 2017, Rosenthal et al. 2017, Troudet et al. 2017, Gangwani and Landin 2018, Moore and Wilkie 2019). This bias toward vertebrates in education, science, and culture contrasts with the fact that the diversity of discovered biological species includes mostly invertebrates, particularly insects, which are fundamental to ecosystem functioning (Leather 2009). A cultural bias toward birds and mammals has also been detected in students' and teachers' perceptions and knowledge of biodiversity in different regions of the world (Patrick and Tunnicliffe 2011, Campos et al. 2012, Bermudez et al. 2018, Almeida et al. 2020, Luvison Araújo and Dos Santos Alitto 2021, Barrutia et al. 2022). This preference toward mammals would be due to both biological and cultural reasons (Bonnet et al. 2002, Hecnar 2009, Shwartz et al. 2014, Rosenthal et al. 2017, Rozzi 2019). With respect to the latter, school plays a key role because school life can contribute to making the biological and cultural diversity of each region visible or invisible (Rozzi et al. 2023).

In particular, we investigated which co-inhabitants EEDS name, and how they describe their habitats and life habits of their regions. We assume that the named species are the ones perceived by the students, and that this would be mediated by their biocultural contexts (Lewis et al. 2018). We also presume that the descriptions of the habitats and habits will be influenced by a sense of place, related to affective bonds generated through situated embodied experiences (Tuan 2014, Masterson et al. 2017).

METHODS

To examine the elementary education degree students' perceptions of their local co-inhabitants, habitats, and habits, we carried out research with participants from faculties of education located in three contrasting ecoregions in Chile (Fig. 1). Because of ethical restrictions, we call these institutions Northern Faculty, Central Faculty, and Southern Faculty. This research was conducted in 2021 in a pandemic context in which all the education faculties were locked down, thus we used online questionnaires in our investigation. It was not possible to use other methods recommended for studying perceptions that required in-situ or face-to-face techniques (Ghisloti Iared and Torres de Oliveira 2017).

Fig. 1. Map with the locations of the three faculties of education. The temperature information corresponds to the annual mean temperature for 2020. The precipitation information corresponds to the total precipitation accumulated in 2020. Photographs: Francois Swiderski and Antonia Barreau.



Study areas

The Northern Faculty is located in the city of Antofagasta, a territory characterized by its arid climate and scarcity of water and vegetation, but with an associated rich marine biota (Weichler et al. 2004). In addition to fishing, the region's economic activities include copper mining. Also, 14.1% of the region's population consider themselves Indigenous or native people (INE 2018). The Central Faculty is located in the city of Santiago, an area with Mediterranean semi-arid climate. Its vegetation consists of sclerophyllous scrublands and forests, and *Vachellia caven* steppes (CONAMA 2008). Santiago is also the capital of the country and its economic and judicial center. Additionally, 10.1% of the region's population considered themselves Indigenous or native people (INE 2018). Finally, the Southern Faculty is located in the city of Villarrica in an area characterized by the presence of temperate deciduous, evergreen, and mixed rainforests (CONAMA 2008). Its economic activities are mainly related to tourism, agriculture, livestock, and forestry based on non-native tree plantations. Additionally, 34.3% of the region's population consider themselves Indigenous or native people (INE 2018).

Data collection

To investigate the perceptions of EEDS about their co-inhabitants, habitats, and habits, an online questionnaire called "Questionnaire on Nature and Connections with Nature" was sent via email to third- and fourth-year students of the three faculties. We received 78 answers of which 72 were complete. The faculties of education that participated in this study are small and have a reduced number of students, mainly local residents. The questionnaire included close-ended questions, adapted from Nisbet and Zelenski (2013) and other open-ended questions on co-inhabitants, habitats, and habits. Open-ended questions were not mandatory to answer.

We used an adaptation of the free listing technique (Newing et al. 2011) to investigate the perceptions of co-inhabitants. Participants were asked to write a list of plants and a list of animals they know from the place where they live and their surroundings. We used free lists as a proxy to perceptual aspects of the participants about the animals and plants with whom they inhabit. This technique has been used for comparing informants' different perceptions of what items are important and which items belong to the cultural domain (Newing et al. 2011), in this case co-inhabitants. Moreover, "a name represents a biocultural connection, bringing that living being to the existence in the cultural sphere, while at the same time influencing decisively the perception of what is named" (Rozzi 2015:88-89). List of species that are named by students also permit the assessment of cultural taxonomic biases, which have been previously used to study biocultural homogenization (Medina et al. 2020), and are linked to the extinction of experience phenomenon (Celis-Diez et al. 2017). With respect to habitats they were asked, "If you had to give a name that characterizes the nature of the place where you live, what would you call it?" With respect to habits, they were asked: "What customs, traditions or habits are typical or characteristic of the place where you live? Please describe them."

Data analysis

The results obtained from the questionnaire were analyzed in several ways. With respect to co-inhabitants, we used bibliographies (Rozzi Sachetti 1984, Chester 2016, Rozzi et al. 2010, Ibarra et al. 2019, D'Elía et al. 2020, Cordero et al. 2021), local nurseries' webpages, and the webpage of the citizen science application "iNaturalist Chile" to obtain the scientific names from the common names given by the participants. We also classified and characterized the species in terms of origin, taxonomic categories, and uses. Most cases were identified to species level. In some cases, the generic names given by the participants did not allow us to classify the species origin. We considered introduced species those that were introduced post-European contact. This criterion includes animals such as dogs or cats (Carle et al. 2021). Subsequently, we calculated the frequency, average ranking, and Smith's S Salience Index for each (Newing et al. 2011). The Smith's S Salience Index is an index that combines the frequency in which an item is named by different participants, and the average position among the lists of the different participants. "The assumption is that the more salient an item is in a domain, the more likely it is to be mentioned sooner and the more people will mention it" (Newing et al. 2011:150). This index varies between 0 and 1; the closer to 1, the more culturally salient the item is. We generated scatter plots between the frequency and average ranking for the plants and animals with the highest Smith's S Salience Index for each area.

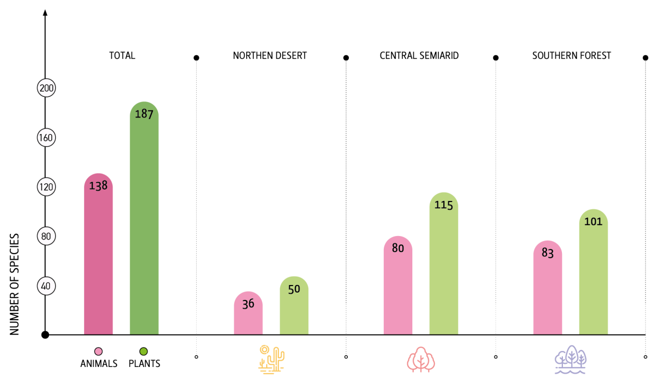
We analyzed the open-ended questions using descriptive coding (Saldaña 2010). Later, narratives were generated from reiterative reading of the coded information (Newing et al. 2011). These synthesis-based narratives require an iterative process of writing, discussing, thinking, and going back to the data (participant's quotes). These narratives were created with the objective of describing and interpreting our findings (Newing et al. 2011). With respect to habitats, the names given to describe the natures of everyday places were read iteratively, identifying differences and similarities between them. Subsequently, we analyzed the most frequently used qualifying nouns and adjectives and the connotations that emerged from them were interpreted in relation to the criteria of sense of place or affective connection to the place (Tuan 2014, Masterson et al. 2017), types of human-nature relationships (Rozzi 2018a), and understandings of nature (Payne 2014). In relation to habits, we identified differences and similarities between the descriptions of the habits, customs, and traditions of the everyday places and a synthesis-based narrative was generated from the identified patterns.

RESULTS

Animal and plant co-inhabitants

Regarding the co-inhabitants, participants were asked to name the plants and animals they knew from the places where they live and their surroundings. Adding the three study areas, a total of 138 animals and 187 plants were named (Fig. 2). In Antofagasta, the northern coastal desert, 36 animals (Appendix 1) and 50 plants (Appendix 2) were named. In Santiago, a large city surrounded by agricultural land and hills in the central area, 80 animals (Appendix 3) and 115 plants (Appendix 4) were named. In Villarrica, the southern area characterized by forests and lakes, 83 animals (Appendix 5) and 101 plants (Appendix 6) were named. Within each faculty, an interesting aspect was the difference in the number of species that participants living in the same locality were able to name. For example, at the Central Faculty, one participant only mentioned 3 animals, while another participant named 30 animals (perceiving different species of birds and insects, among others). At the Southern Faculty, one student failed to name any species of plants, while another student mentioned 27 species. The same happened at the Northern Faculty, one student couldn't name any plant species while another named 10 species.

Fig. 2. Number of species of animals and plants listed by participants for each ecoregion and in total.



We used the Smith's S Salience Index (S) to compare the cultural relevance of different species. Regarding animal species, this index varied between 0.73 and 0.00. The dog (*Canis familiaris*) was the most salient species, this means the most frequently named species, and the first to appear, on average, in the questionnaires of the three ecoregions (Figs. 3, 4, and 5). This species Smith's S Salience Index (S) had values of 0.40 in the northern area, 0.73 in the central area, and 0.30 in the southern area. Regarding plants, the Smith's S Salience Index varied between 0.41 and 0.00. The most mentioned species were different in each of the geographic regions, and representative of the local ecosystems. In the arid north, it was cacti (Family Cactaceae) (S = 0.41; Fig. 6); in the central area, lemon (*Citrus limon*) and orange (*Citrus sinensis*) trees (S = 0.25 each; Fig. 7); and in the south, native oak or hualle (*Nothofagus obliqua*; S = 0.31; Fig. 8). In the arid north, some species whose natural distributions do not correspond to the desert climate were named, such as *Nothofagus obliqua* (S = 0.07) or *Jubaea chilensis* (S = 0.07; Fig. 6). In the central area, several plants that are often found in orchards or gardens were mentioned, such as *Mentha* spp. (S = 0.20) or *Ruta chalepensis* (S = 0.19; Fig. 7). In the southern area, the species at the top of the lists were mainly native species such as *Araucaria araucana* (S = 0.18) or *Aristotelia chilensis* (S = 0.21; Fig. 8).

Regarding the biogeographic origin of the animal species, although the most mentioned species were mainly introduced species (i.e., dogs, cats, cows), most of the species named in the three geographic regions corresponded to native species (Table 1). In the north, 10 introduced species (27.8%) and 20 native species (55.5%) were named. Introduced species were mentioned 27 times (31.4%) and native species 53 times (61.6%). In the center, 23 introduced species (28.8%) and 34 native species (42.5%) were named. However, introduced species were mentioned more frequently, 119 times (56.4%) and native species 58 times (27.5%), despite being fewer in number. This fact is explained by the high frequency with which dogs (80.0%) and cats (77.0%) were named. On the other hand, 20 introduced species (24.1%) and 53 native species (63.9%) were named in the south. Introduced species were mentioned 91 times (37.8%) and native species 136 times (56.4%).

Fig. 3. Salient species of animals of the northern region. Axis X corresponds to the frequency, i.e., the number of times a species was named across all the participants divided by the total number of participants and expressed as a percentage. Axis Y corresponds to the average rank; this is the addition of the positions in the list for each species divided by the total number of informants that listed each species. The “S” is an index that combines the frequency in which an item is named and the average position among the lists of the different participants.

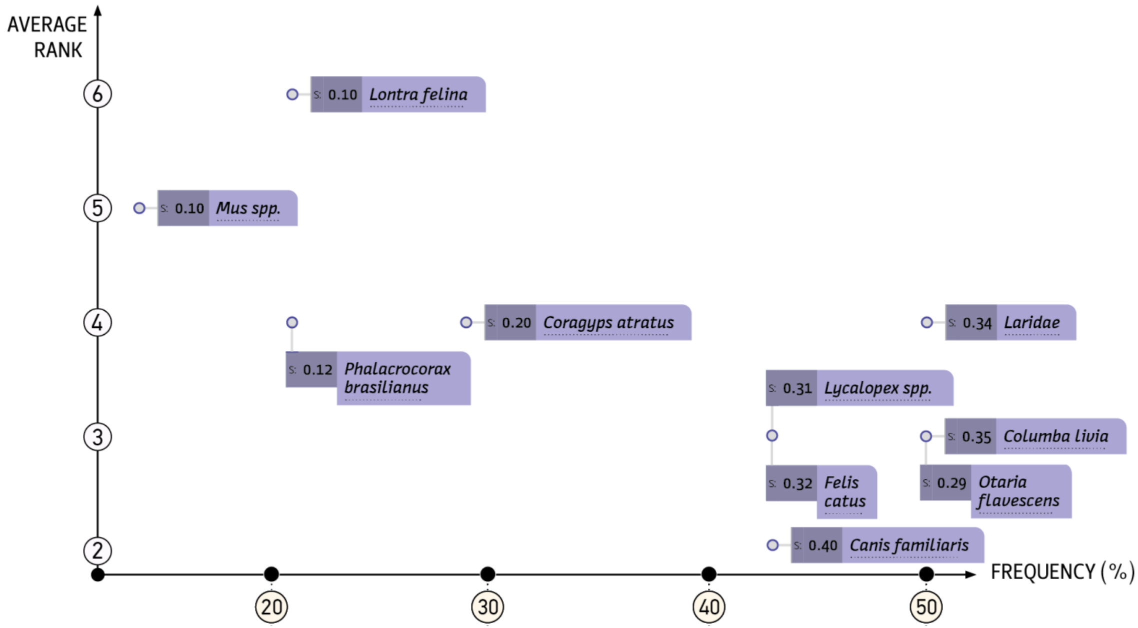


Fig. 4. Salient species of animals of the central region. Axis X corresponds to the frequency, i.e., the number of times a species was named across all the participants divided by the total number of participants and expressed as a percentage. Axis Y corresponds to the average rank; this is the addition of the positions in the list for each species divided by the total number of informants that listed each species. The “S” is an index that combines the frequency in which an item is named and the average position among the lists of the different participants.

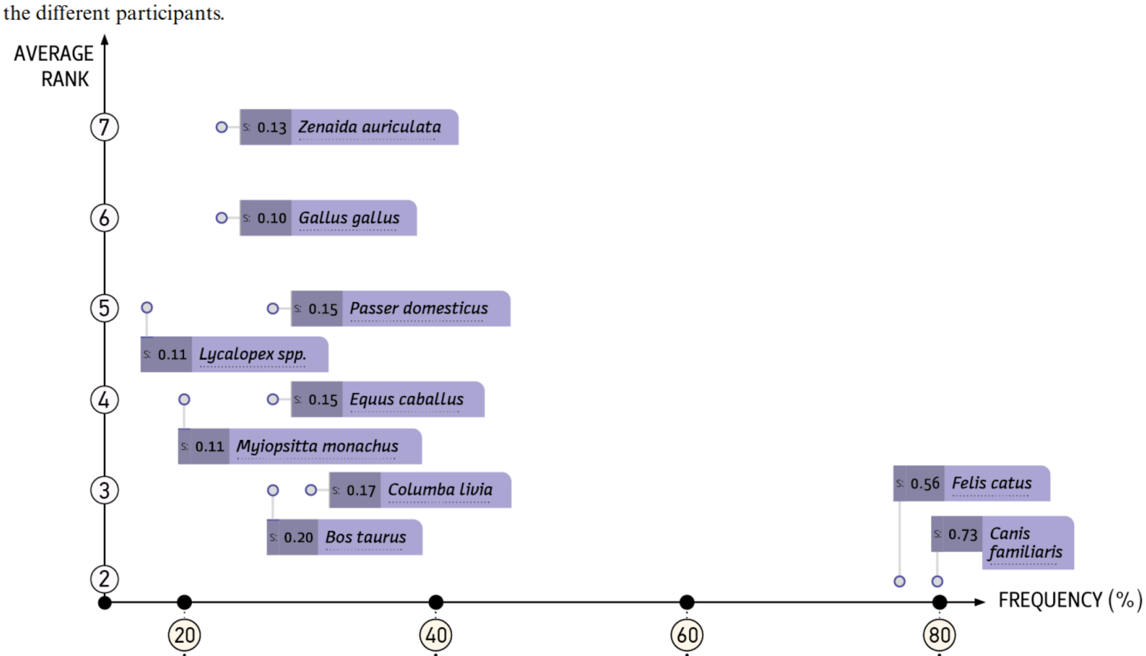


Fig. 5. Salient species of animals of the southern region. Axis X corresponds to the frequency, i.e., the number of times a species was named across all the participants divided by the total number of participants and expressed as a percentage. Axis Y corresponds to the average rank; this is the addition of the positions in the list for each species divided by the total number of informants that listed each species. The "S" is an index that combines the frequency in which an item is named and the average position among the lists of the different participants.

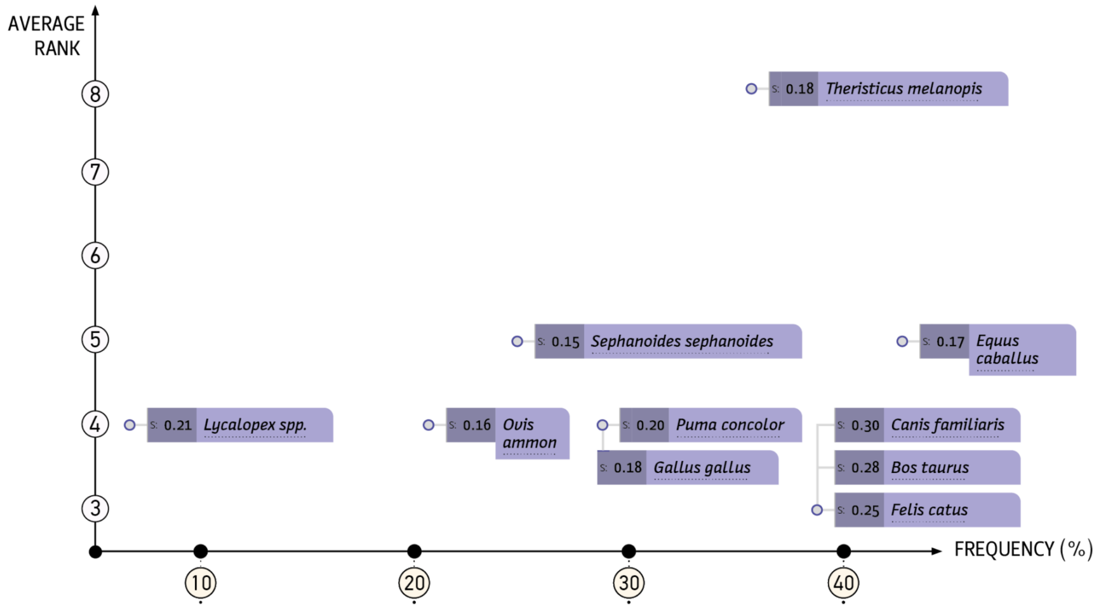


Fig. 6. Salient species of plants of the northern region. Axis X corresponds to the frequency; i.e., the number of times a species was named across all the participants divided by the total number of participants and expressed as a percentage. Axis Y corresponds to the average rank; this is the addition of the positions in the list for each species divided by the total number of informants that listed each species. The "S" is an index that combines the frequency in which an item is named and the average position among the lists of the different participants.

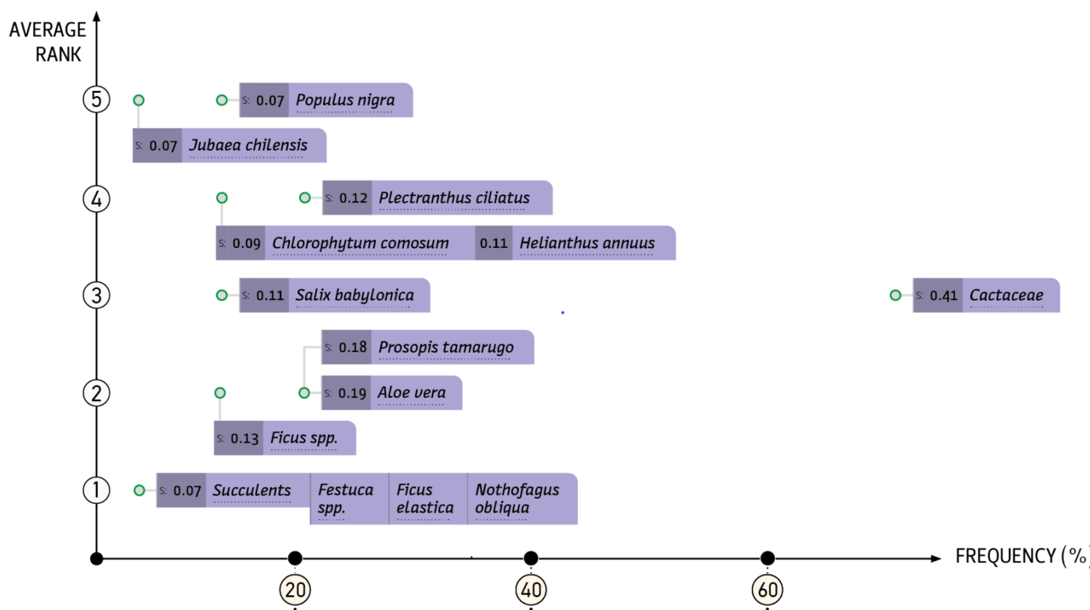


Fig. 7. Salient species of plants of the central region. Axis X corresponds to the frequency; i.e., the number of times a species was named across all the participants divided by the total number of participants and expressed as a percentage. Axis Y corresponds to the average rank; this is the addition of the positions in the list for each species divided by the total number of informants that listed each species. The “S” is an index that combines the frequency in which an item is named and the average position among the lists of the different participants.

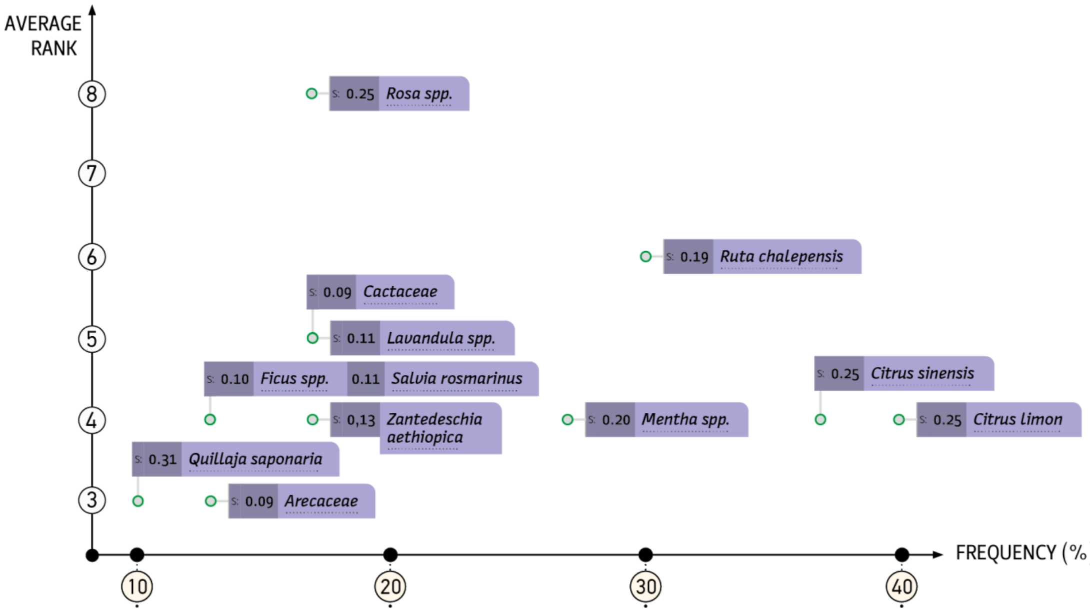


Fig. 8. Salient species of plants of the southern region. Axis X corresponds to the frequency; i.e., the number of times a species was named across all the participants divided by the total number of participants and expressed as a percentage. Axis Y corresponds to the average rank; this is the addition of the positions in the list for each species divided by the total number of informants that listed each species. The “S” is an index that combines the frequency in which an item is named and the average position among the lists of the different participants.

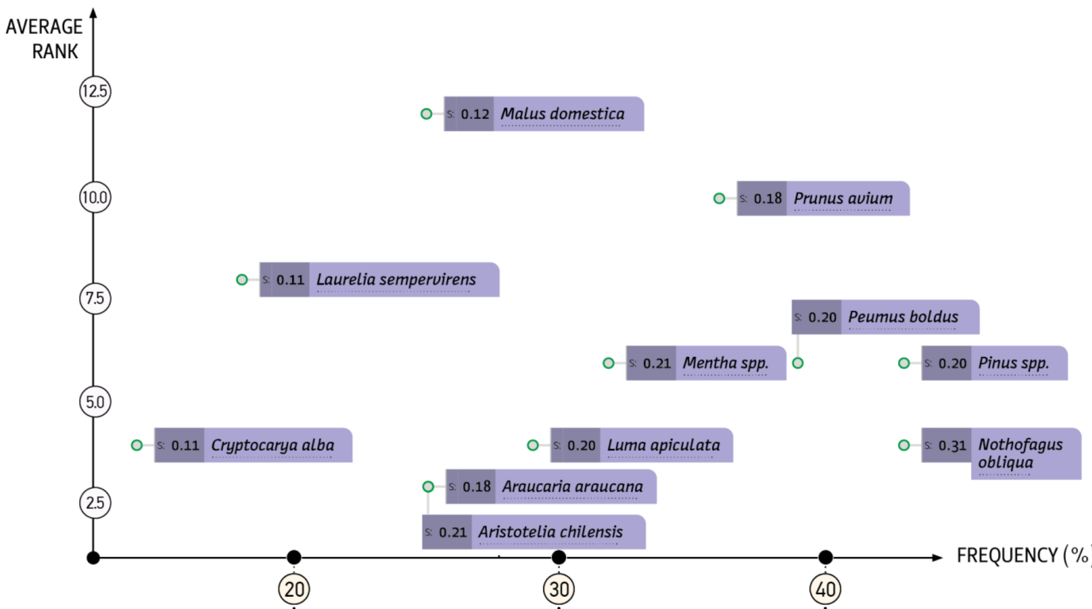


Table 1. Number of introduced or native animals for the three ecoregions.

	Number of animals	Number of mentions	Percentage of animals	Percentage of mentions
Northern Desert Ecoregion				
Introduced	10	27	27.8%	31.4%
Native	20	53	55.5%	61.6%
Unknown	6	6	16.7%	7.0%
Total	36	86	100.0%	100.0%
Central Semiarid Ecoregion				
Introduced	23	119	28.8%	56.4%
Native	34	58	42.5%	27.5%
Unknown	23	34	28.7%	16.1%
Total	80	211	100.0%	100.0%
Southern Forest Ecoregion				
Introduced	20	91	24.1%	37.8%
Native	53	136	63.9%	56.4%
Unknown	10	14	12.0%	5.8%
Total	83	241	100.0%	100.0%

With respect to the biogeographic origin of the plant species, introduced species prevailed in all three areas (Table 2). According to species numbers, 31 introduced species (62.0%) and 11 native species (22.0%) were named in the north. Introduced species were mentioned 39 times (55.7%) and native species 14 times (20.0%). In the center, 84 introduced species (73.0%) and 22 native species (19.2%) were named. Introduced species were mentioned 195 times (78.5%) and native species 37 times (14.8%). In the south, 56 introduced species (55.4%) and 39 native species (38.7%) were named. Introduced species were mentioned 144 times (53.7%) and native species 116 times (43.2%). However, the most prominent plants in the north (Cactaceae) and south (*Nothofagus obliqua*) were mostly native species.

Table 2. Number of introduced or native plants for the three ecoregions.

	Number of plants	Number of mentions	Percentage of plants	Percentage of mentions
Northern Desert Ecoregion				
Introduced	31	39	62.0%	55.7%
Native	11	14	22.0%	20.0%
Unknown	8	17	16.0%	24.3%
Total	50	70	100.0%	100.0%
Central Semiarid Ecoregion				
Introduced	84	195	73.0%	78.5%
Native	22	37	19.2%	14.8%
Unknown	9	17	7.8%	6.7%
Total	115	249	100.0%	100.0%
Southern Forest Ecoregion				
Introduced	56	144	55.4%	53.7%
Native	39	116	38.7%	43.2%
Unknown	6	8	5.9%	3.1%
Total	101	268	100.0%	100.0%

With respect to taxonomic categories, of the 138 animal taxa named, 108 were vertebrates (78.26%). This prevalence of vertebrates was especially marked in the northern and southern ecoregions (Table 3). For example, in the south they named 74 vertebrate species (89.2%) and 9 invertebrate species (9.0%). However, adding the times each species was named by different participants, vertebrates were mentioned 230 times (95.4%), whereas invertebrates only 11 times (4.6%). In addition, general categories such as “grasshoppers” or “butterflies” were often used for invertebrates. Other mentioned invertebrates were annelids, arthropods, and mollusks. Vertebrates included mainly birds and mammals, and to a lesser extent amphibians, fish, and reptiles (Fig. 9). Regarding the taxonomic categories of plants, all the species named in the three areas corresponded to vascular plants. Not even one non-vascular plant species was named (Table 4).

Table 3. Number of vertebrate and invertebrate animals for the three ecoregions.

	Number of animals	Number of mentions	Percentage of animals	Percentage of mentions
Northern Desert Ecoregion				
Vertebrate	29	79	80.6%	91.9%
Invertebrate	7	7	19.4%	8.1%
Total	36	86	100.0%	100.0%
Central Semiarid Ecoregion				
Vertebrate	58	183	72.5%	86.7%
Invertebrate	22	28	27.5%	13.3%
Total	80	211	100.0%	100.0%
Southern Forest Ecoregion				
Vertebrate	74	230	89.2%	95.4%
Invertebrate	9	11	10.8%	4.6%
Total	83	241	100.0%	100.0%

Table 4. Number of vascular and non-vascular plants for the three ecoregions.

	Number of plants	Number of mentions	Percentage of plants	Percentage of mentions
Northern Desert Ecoregion				
Vascular	50	70	100.0%	100.0%
Non-vascular	0	0	0.0%	0.0%
Total	50	70	100.0%	100.0%
Central Semiarid Ecoregion				
Vascular	115	249	100.0%	100.0%
Non-vascular	0	0	0.0%	0.0%
Total	115	249	100.0%	100.0%
Southern Forest Ecoregion				
Vascular	101	268	100.0%	100.0%
Non-vascular	0	0	0.0%	0.0%
Total	101	268	100.0%	100.0%

Contrasting wild versus domestic species, the former prevailed among the animals. However, a few domestic species were mentioned repeatedly (Table 5). For example, in the central area, 3 domestic pet species (3.7%) were mentioned 48 times (22.7%). On the other hand, the vast majority of the plants named were cultivated, mainly for food or medicinal uses. In the north and center, ornamental species were also important, and in the south, timber species (Table 6).

Habitats

We asked participants: “If you had to give a name that characterizes the nature of the place where you live, what would you call it?” The names given by the participants to their everyday places suggest diverse and contrasting relationships with their habitats (Table 7). On the one hand, many names show affective links, such as “the hidden beauty” (student 1 northern area), “the

Fig. 9. Number of animal species of different taxa mentioned among participants of the three ecoregions.

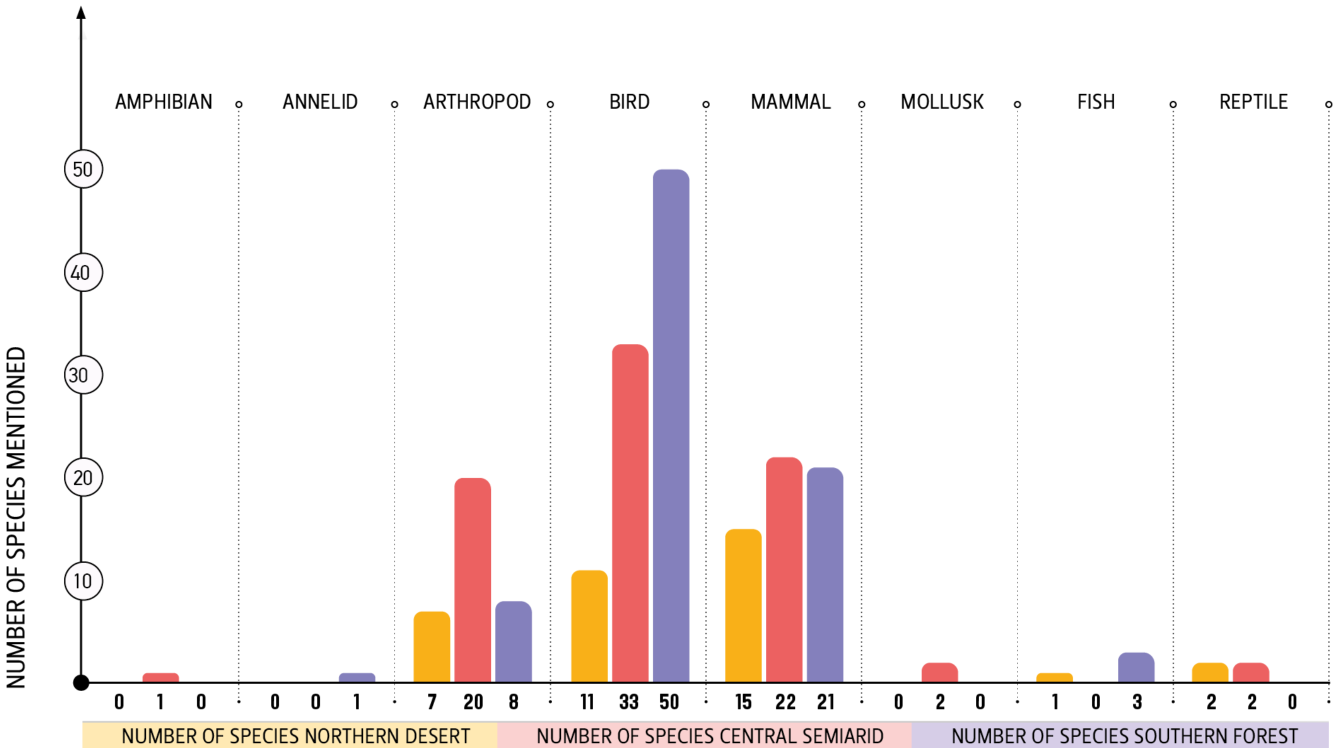


Table 5. Number of domestic and wild species of animals.

	Number of animals	Number of mentions	Percentage of animals	Percentage of mentions
Northern Desert Ecoregion				
Domestic farm animals	6	6	16.7%	7.0%
Domestic pet	2	12	5.6%	14.0%
Wild	28	68	77.8%	79.1%
Total	36	86	100.0%	100.0%
Central Semiarid Region				
Domestic farm animals	10	33	12.5%	15.6%
Domestic pet	3	48	3.7%	22.7%
Wild	64	121	80.0%	57.4%
Unclassified	3	9	3.8%	4.3%
Total	80	211	100.0%	100.0%
Southern Forest Ecoregion				
Domestic farm animals	11	49	13.3%	20.3%
Domestic pet	2	22	2.4%	9.1%
Wild	67	166	80.7%	68.9%
Unclassified	3	4	3.6%	1.7%
Total	83	241	100.0%	100.0%

Table 6. Number of species of plants with different uses for the three ecoregions.

Plants' uses	Number of species northern desert ecoregion	Number of species central semiarid ecoregion	Number of species southern forest ecoregion
Alimentary	20	46	49
Building	0	0	3
Cosmetic	3	4	6
Craft	5	6	13
Detergent	1	1	1
Dye	4	6	13
Forage	5	2	1
Fuel	2	3	6
Lumber	3	15	24
Magical-ritual	4	6	13
Medicinal	22	56	64
Ornamental	17	39	16
Textile	0	1	0
Veterinary	1	0	1

paradise of the central zone: Curacaví" (student 2 central area), or "richness of vegetation and living beings" (student 3 southern area). In the southern area almost all the names given have positive connotations related to humidity, richness, or diversity. On the other hand, an idea of nature associated with the color green was observed in expressions such as "abundant green" (student 4 southern area) and "urban green" (student 5 central area). This idea was also evident in the difficulties in naming other colors of nature: "I can't really think, since it is a dry place, it has little green..." (student 6 northern area); "I live in Antofagasta, it is ugly, dirty, no greenery" (student 7 northern area). Other participants made up names that referred to diverse nature such as deserts, sea, and city, among other landscapes. For instance: "urban nature" (student 8 central area) and "native desert" (student 9 northern area). With respect to urban habitats, two divergent trends in human-nature relationships were identified. Some statements evidenced a close human-nature relationship as "a privilege that the poorest of us organize ourselves in order to live together with her" (student 10 central area), while others evidenced a tension between human presence and nature as if one excluded the other, "the survivors, since they survive the city and the human being" (student 11 central area).

Table 7. Names given by participants that characterize the nature of the place where they live. Examples of quotes.

Ecoregion	Participants quotes
Northern Desert Ecoregion	“desert nature” “I can’t really think, since it is a dry place, it has little green...” “native desert” “desert area with access to the coast” “the hidden beauty” ” No, I don’t know, I can’t think of anything... It’s difficult, in the north XD” “coast-desert” “biodiversity in an arid climate” “desert with hopes” “I live in Antofagasta, it is ugly, dirty, no greenery”
Central Semiarid Ecoregion	“country” “the paradise of the central zone: Curacaví” “human nature, since most of it is from humans or is there by humans” “the survivors, since they survive the city and the human being” "a privilege that the poorest of us organize ourselves in order to live together with her" “the place is urban, but the sector is old and near where I live there are some small farms” “urban green” "scarce nature (in my house there are plants but in my neighborhood I consider that there are few)”
Southern Forest Ecoregion	“living hope “ “green summits” “richness of vegetation and living beings“ “abundant green” “violated nature” “great diversity of species” “secret garden” “humidity” “Mallolafken” “pampa in resistance” “coastal native forest” “diverse”

Fig. 10. *La Tirana* Festival in the northern zone. Photograph: Rocio Pinto.

Habits

With respect to habits, similar and different elements were observed among the ecoregions. Some typical habits of the northern area were visiting the coastline or the celebration of La Tirana, a religious festival with cultural dances and music (Fig. 10). In the central area, the habit of getting together was mentioned, as well as the habit of leaving garbage in prohibited areas. Numerous students from the southern area mentioned “several customs linked to Mapuche traditions, for example, holding ceremonies or celebrating harvests” (student 12 southern area), such as the *Nguillatun*, a Mapuche rite of praying to and thanking the gods. They also mentioned the Mapuche ceremony of *We tripantu*, which is held during the winter solstice and celebrates the renewal of the cycles of nature.

Some similar habits among the ecoregions were local commerce, whether formal or informal, and fairs or traditional festivals. Other similar habits among students from different areas, especially urban areas, were the implementation of community activities that involved the organization of neighbors for mutual support. On the contrary, other participants from urban sites indicated that in the places where they live there is selfishness, haste, carelessness, and little community life.

With respect to traditions, religious and rural festivities were mentioned, such as *La Tirana* Festival in the north (Fig. 10) or the Festival of *la Virgen del Carmen* in the center. Among the festivals related to agricultural activities, students from the central and southern areas mentioned the threshing festival, the berry festival, the shearing festival, the Chilean rodeo (Fig. 11), the chicha festival, the grape harvest festival, and the huma festival. These festivals usually celebrate the harvests and feature traditional food, drinks, and music. Some of these festivals involve animals such as horses, cows, and sheep. Other traditions linked to food were the collection of *piñones* (Fig. 12), *digüeñes*, fishing, the collection of sea products, or land shrimp; as mentioned mainly by students from the southern area.

DISCUSSION

Our multi-site study across a wide latitudinal gradient identified differences and similarities in the perceptions of elementary education degree students (EEDS) about the co-inhabitants, habitats, and habits of their ecoregions. The similarities between the sites might indicate a degree of biocultural homogenization. For example, the animals perceived in all ecoregions corresponded mostly to vertebrates, mainly birds and mammals, despite being a minority component of the country's biodiversity. In addition, the same species, the dog, was the most mentioned in all ecoregions. Likewise, most of the plant species named were introduced plants with food or medicinal uses, present in many countries. On the other hand, regarding habits, several participants described customs related to trade activities.

Fig. 11. Chilean rodeo in the central zone. Photograph: Marcela Romagnoli.

Fig. 12. Gathering *piñones* in the southern zone. Photograph: José Tomás Ibarra.

Regarding differences between sites, participants also named co-inhabitants and described habits specific to their contexts, such as the collection of native species of mushrooms, plants, or animals for food use, or the knowledge of ritual celebrations typical of their localities and linked to their habitats. This suggests diverse valuations of biodiversity and local knowledge (IPBES 2022), and thus a degree of conservation of the local biocultural diversity.

Animal and plant co-inhabitants

With respect to animal co-inhabitants, we found a marked bias toward naming vertebrates. This bias contrasts with the greater richness of invertebrate species present in Chile; 15,466 native invertebrate species and 2036 vertebrate species, of which 464 correspond to birds and 162 to mammals (Ministerio del Medio Ambiente 2019). These results are consistent with numerous studies showing that students and teachers name or recognize more mammals and birds than other taxonomic groups (Patrick and Tunnicliffe 2011, Campos et al. 2012, Bermudez et al. 2017, Almeida et al. 2020, Luvison Araújo and Dos Santos Alitto 2021, Barrutia et al. 2022). This could be due to aesthetic preferences, personal tastes, our own biology (Bonnet et al. 2002, Hecnar 2009, Shwartz et al. 2014, Rosenthal et al. 2017), or historical and philosophical reasons (Rozzi 2018b). Rozzi (2019) pointed out that the scarce attention toward invertebrates hinders moral consideration about them as less relevant for life.

When examining the total list of animal species named, we found a greater number of native than introduced species. However, when observing the most frequently mentioned species, the first places were occupied by introduced and/or domestic species in central and southern Chile. This finding coincides with the results of another study (Campos et al. 2012). These results show that dogs and cats are culturally relevant species. Studies have reported that these species can contribute to biotic homogenization by threatening local native biodiversity (Crego et al. 2018, Carle et al. 2021). In that sense, this result suggests biocultural homogenization both as a product and a driver. There is a cultural domain that tends to value these species above others, and, in some cases, these preferred species threaten the diversity of other animals through their predatory habits or disease transmissions (Crego et al. 2018). In contrast, in northern Chile, seven of the most mentioned species corresponded to native species and only four to introduced species. In addition, many of the species named were marine birds and mammals. These results suggest an attentive observation of the context and a possible connection with the habitat by the students who referred to this habitat as "native desert" or "coast-desert."

A striking result of our research is that university students named more plants than animals. This result differs from studies that found that school children more often name animal than plant species (Patrick and Tunnicliffe 2011, Campos et al. 2012, Barrutia et al. 2022). This contrast with our study suggests that age may influence perceptions of different taxonomic groups, a subject that has been little studied (Botzat et al. 2016).

In relation to plant co-inhabitants, all plant species mentioned by EEDS were vascular plants. This bias is an extreme case of the lack of attention to non-vascular plants (Patrick and Tunnicliffe 2011, Medina et al. 2020, Barrutia et al. 2022). This pattern could derive in part from the lack of common names for non-vascular plants, which would make them "invisible," i.e., lacking perception and cultural appreciation (Lewis et al. 2018). Notwithstanding, there are growing initiatives trying to change this lack of names for non-vascular plants by creating new common names and providing experiences in direct contact with these non-vascular plants. In addition, most of the plants named corresponded to introduced species, many of them with food, medicinal, or ornamental uses. This coincides with the literature pointing out that students tend to know more about domestic plants from their garden experiences (Patrick and Tunnicliffe 2011, Campos et al. 2012, Bermudez et al. 2018, Medina et al. 2020, Barrutia et al. 2022). The pattern of naming more introduced species occurred for the northern and central participants. In contrast, in the southern area, seven of the most mentioned species were native plants and only four were introduced species. Some possible explanations for this can be related to a larger number of public protected areas in the southern area or in the study programs of the Southern Faculty, which focuses on local knowledge about plants and other environmental attributes. This could also explain why a greater number of native species with dyeing, food, and medicinal uses, among others, were named in this area. Moreover, students from the south reported various activities related to the collection of edible species that are native to their region. In this sense, the southern area could correspond to a biocultural refuge, that is, "places that not only shelter species, but also carry knowledge and experience about practical management of biodiversity and ecosystem services" (Barthel et al. 2013:1143).

Habitats

In relation to habitats, different trends were identified. For example, some expressions, such as "the hidden beauty," suggest a sense of place that implies affective bonds built through experiences and interactions (Tuan 2014, Masterson et al. 2017, Pramova et al. 2021). One striking aspect is the repeated association of nature with the color green, regardless of the geographical context. This could be related with a perceptive expectation dissociated from everyday reality in the north and central ecoregions, which tends to ignore the nature that is there (and is not green), minimizing its value or possibilities of being protected and restored (Gobster et al. 2007). This tendency can be associated with esthetic preferences for green landscapes associated with fertility and the general repulsion for brownish and yellowish landscapes associated with dryness (Bidegain et al. 2020); or a greater ability to perceive plants, especially flowers and trees, than other organisms (Shwartz et al. 2014, Fischer et al. 2018, Gonçalves et al. 2021, Tomitaka et al. 2021). This pattern has also been frequently found in research of urban environments (Soga et al. 2015, Buizer et al. 2016, Soga and Gaston 2016, Vierikko et al. 2017, Elands et al. 2019). This prevalence of a mental image of "green nature" might be problematic because it could contribute to rendering invisible nature that tends to be other colors; for example, arid or marine habitats that host numerous co-inhabitants often underperceived, such as reptiles, invertebrates, or fishes. This was evident in the northern area, where some students had difficulty recognizing nature in a dry and sparsely green place. However, these students were able to name marine species inhabiting their daily environments.

Another understanding among students that might distance them from nature was the idea of a "violated nature" (student 13 southern area) by humans. Students from urban settings expressed that plants and animals are "the survivors, since they survive the city and the human being" (student 14 central area). This type of perception has been also found among school children (Payne 2014, Pointon 2014). The negative perception about the impact of humans on nature could be also linked to the lack of consideration of cultural diversity in schools, which consequently can act as a driver of biocultural homogenization (Rozzi 2012). In a broader context, this detachment of schools from local biodiversity can be associated with the dominant idea in Western civilization that has separated citizens from nature (Latour 2007).

Habits

With respect to habits, we found several specific links between habitats and co-inhabitants that reflect the biocultural diversity found among students from different ecoregions of Chile. Most of these habits are the result of years of interaction and coevolution between the habitats and people. For example, EEDS from coastal areas collected marine species, and students from the south collected edible species from the forest. On the other hand, students mentioned rites that suggest a strong connection with habitats and co-inhabitants, such as celebrating seasonal cycles or praying for harvests. Some EEDS highlighted agricultural traditions linked to rural habitats and mentioned species such as cows or horses. This has also been found among students from other regions in South America (Campos et al. 2012, Bermudez et al. 2017), but not so among students from England or the United States (Patrick and Tunnicliffe 2011). These results suggest that everyday connections with farm life may be more present in South America than other areas. An interesting finding among our EEDS is that they named practices of collaboration among neighbors to generate common places for co-habitation in urban habitats. This type of community habit can favor the cultivation of links between cultural and biological diversity in cities.

CONCLUSION

This research is an exploratory study with a limited number of students. However, it contributes to the investigation of perceptions and valuations that affect the problem of biocultural homogenization in different ways. Several studies point out that students from different countries are more familiar with pets or African animals, which they know through the media or zoo visits, than with local native species (Ballouard et al. 2011, Patrick and Tunnicliffe 2011, Campos et al. 2012, Almeida et al. 2020, Barrutia et al. 2022, Hooykaas et al. 2022). This pattern suggests that biocultural homogenization is occurring and that it is probably facilitated by the process of extinction of experience. This may be because children's initial knowledge is increasingly indirect and decontextualized (Ballouard et al. 2011, Campos et al. 2012, Hooykaas et al. 2022), or because the majority of them live in urbanized areas (Miller 2005, Soga and Gaston 2016, Celis-Diez et al. 2017), or due to their decreased ability to pay attention and perceive biodiversity (Shwartz et al. 2014).

We analyze the perceptions of co-inhabitants, habitats, and habits of future teachers, who will influence the perceptions and valuations of future generations through their practices (Shwartz et al. 2014, Bernardo et al. 2021, Barrutia et al. 2022). On the one hand, biocultural homogenization was observed in their perceptions of the environment, which was stated in the bias toward certain types of animals, plants, habits, or ideas of nature. On the other hand, there was evidence of an attentive knowledge about the biological and cultural particularities of their localities. In this sense, the work of teachers that pay attention to territorial contexts and knowledge could be a biocultural refuge, by rescuing and transmitting knowledge of their co-inhabitants, habitats, and habits. By doing this, they could also contribute to the generation of biocultural diversity and new care practices, for example, in urban areas where there is high dynamism and convergence of cultural diversities (Vierikko et al. 2017, Elands et al. 2019, McMillen et al. 2020, Stålhammar and Brink 2020). The development of an ecologically informed sensitivity could foster the cultivation of a biocultural ethics among EEDS through their education process. In turn, this could contribute to the knowledge and valuation of co-inhabitants, habitats, and habits that are still scarcely perceived and valued.

To "make visible" biocultural diversity, teaching could help sharpen the ability to perceive and appreciate the diversity of organisms present in daily life and to transfer knowledge about their ecological and cultural importance in future generations (Shwartz et al. 2014, Palmberg et al. 2015, Gonçalves et al. 2021, Barrutia et al. 2022). This ability could help to overcome taxonomic biases that exclude most living beings and to develop an ecologically informed sensitivity (Gobster et al. 2007, Saito 2010). Teaching that fosters students' hands-on experiences in direct contact with biocultural diversities can help develop an emotional connection to local habitats and co-inhabitants and generate a positive attitude toward them (Ibarra et al. 2020). In this sense, a formal education that pays attention to the inextricable links between co-inhabitants, habitats, and habits offers an approach for teaching practices. These would criticize ways of thinking and acting that disregard those links and promote biocultural homogenization, instead, valuing knowledge and habits of life that perceive those links and promote biocultural conservation.

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Data Availability:

The data that support the findings of this study are available on request from the corresponding author, M. M-H. None of the data are publicly available because they contain information that could compromise the privacy of research participants. Ethical approval for this research study was granted by Pontificia Universidad Católica de Chile ID Protocolo: 201008008.

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Appendix 1. Animals named by participants of Northern Chile.

	Scientific name	Common name	Smith's S salience Index	Frequen-cy (%)	Origin †	Type of animal ‡	Type of fauna
1	*Canis familiaris*	dog	0.40	43	E	V	Domestic pet
2	*Columba livia*	Dove	0.35	50	E	V	Wild
3	Family Laridae	Seagull	0.34	50	N	V	Wild
4	*Felis catus*	cat	0.32	43	E	V	Domestic pet
5	*Lycalopex spp.*	fox	0.31	43	N	V	Wild
6	*Otaria flavescens*	sea wolf	0.29	50	N	V	Wild
7	*Coragyps atratus*	Black Vulture	0.20	29	N	V	Wild
8	Subfamily Sterninae	Tern	0.13	29	N	V	Wild
9	*Phalacrocorax brasilanus*	Black Cormorant	0.12	21	N	V	Wild
10	*Lontra felina*	marine otter	0.10	21	N	V	Wild
11	*Mus spp.*	mouse	0.10	14	E	V	Wild
12	*Liolaemus spp.*	lizard	0.09	21	N	V	Wild
13	*Pelecanus thagus*	Pelican	0.08	21	N	V	Wild
14	*Chelonia mydas*	sea turtle	0.08	14	N	V	Wild
15	*Lama pacos*	alpaca	0.07	7	N	V	Domestic farm
16	*Spheniscus humboldti*	Penguin	0.07	14	N	V	Wild
17	Family Trochilidae	Hummingbird	0.05	7	N	V	Wild
18	*Lama glama*	lama	0.05	7	N	V	Domestic farm
19	*Pterocnemia pennata*	Lesser Rhea	0.05	7	N	V	Wild
20	*Bos taurus*	cow	0.04	7	E	V	Domestic farm
21	Family Muscidae	fly	0.04	7	U	I	Wild
22	*Zenaida auriculata*	Eared Dove	0.04	7	N	V	Wild
23	*Equus caballus*	horse	0.03	7	E	V	Domestic farm
24	Superclass Osteichthyes	peces de plata	0.03	7	U	V	Wild
25	*Blattella germanica*	cockroach	0.02	7	E	I	Wild
26	Family Delphinidae	dolphin	0.02	7	N	V	Wild
27	*Gallus gallus*	hen	0.02	7	E	V	Domestic farm
28	*Lama guanicoe*	guanaco	0.02	7	N	V	Wild
29	Family Formicidae	ant	0.02	7	U	I	Wild
30	*Ovis ammon*	sheep	0.02	7	E	V	Domestic farm
31	*Lagidium viscacia*	rock squirrel, vizcacha	0.02	7	N	V	Wild
32	Order Decapods	crab	0.01	7	U	I	Wild
33	Suborder Heterocera	moths	0.01	7	U	I	Wild
34	*Oryctolagus cuniculus*	rabbit	0.01	7	E	V	Wild
35	Order Lepidoptera	butterfly	0.01	7	U	I	Wild
36	*Gyriosomus angustus*	vaquita del desierto	0.01	7	N	I	Wild

† Origin: E= Exotic, N= Native, U=Unclassified
‡ Type of animal: V= Vertebrate, I= Invertebrate

Appendix 2. Plants named by participants of Northern Chile.

	Scientific name	Common name	Smith's S Salience Index	Frequency (%)	Ori-gin†	Uses ‡	Type of plant §
1	Family Cactaceae	cactus	0,41	71	U	A, L	V
2	*Aloe vera*	aloe vera	0,19	21	E	Me	V
3	*Prosopis tamarugo*	tamarugo	0,18	21	N	Fo	V
4	*Ficus spp.*	ficus tree	0,13	14	E	O	V
5	*Plectranthus ciliatus*	speckled spur flower	0,12	21	E	O	V
6	*Salix babylonica*	willow	0,11	14	E	Me, O	V
7	*Helianthus annuus*	sunflower	0,11	14	E	A, O	V
8	*Chlorophytum comosum*	spider plant	0,09	14	E	O	V
9	*Populus nigra*	poplar	0,07	14	E	L, O	V
10	*Festuca spp.*	coiron	0,07	7	N	Fo	V
11	*Ficus elastica*	rubber tree	0,07	7	E	O	V
12	*Nothofagus obliqua*	hualle, roble	0,07	7	N	Cr, Dy, L, Ma, Me	V
13	*Jubaea chilensis*	chilean palm	0,07	7	N	A, Co, Cr, L, Ma	V
14	-	succulent	0,07	7	U	-	V
15	*Schefflera arboricola*	dwarf umbrella tree	0,06	7	E	O	V
16	*Dracaena marginata*	dragon tree plant	0,06	7	E	O	V
17	-	fruit tree	0,06	7	U		V
18	*Acacia dealbata*	silver wattle	0,06	7	E	O	V
19	-	climbing plant	0,06	7	U	-	V
20	*Dianthus caryophyllus*	carnation	0,05	7	E	Me, O	V

21	*Solanum tuberosum*	potatoes	0,05	7	N	A	V
22	*Stipa spp.*	stipa	0,05	7	N	Fo	V
23	*Manihot esculenta*	yucca	0,05	7	E	A	V
24	*Robinia pseudoacacia*	black locust	0,04	7	E	A, L	V
25	Lilium spp.	lily	0,04	7	E	O	V
26	*Citrus limon*	lemon tree	0,04	7	E	A, Me	V
27	*Solanum lycopersicum*	tomatoes	0,04	7	E	A, Me	V
28	*Chenopodium ambrosioides*	paico	0,04	7	E	Me	V
29	*Melissa officinalis*	lemon balm	0,04	7	E	Me	V
30	*Cryptocarya alba*	peumo	0,04	7	N	A, Co, Cr, Dy, Fu, Me	V
31	*Quillaja saponaria*	quillay	0,04	7	N	Co, De, L, Me	V
32	*Pelargonium sp.*	geranium, cardenal	0,03	7	E	O	V
33	*Euphorbia pulcherrima*	poinsettia, flor inca	0,03	7	E	O	V
34	*Laurus nobilis*	bay tree	0,03	7	E	A, Me, O	V
35	*Mentha spp.*	mint	0,03	7	E	A, Me	V
36	*Citrus sinensis*	orange tree	0,03	7	E	A, Me	V
37	Familia Arecaceae	palm tree	0,03	7		A, O	V
38	*Cortaderia atacamensis*	pampas grass, cola de zorro	0,02	14	N	Cr, Fo, Me	V
39	*Acacia caven*	Roman cassie, espino	0,02	7	N	A, Fu, L, Me	V
40	*Ficus carica*	fig tree	0,02	7	E	A, Me	V
41	*Azorella compacta*	yareta, llareta	0,02	7	N	A, Dy, Fo, Fu, Ma, Me, V	V
42	*Daucus carota*	carrot	0,02	7	E	A, Me	V
43	-	tree	0,01	7			V

44	*Prunus avium*	cherry tree	0,01	7	E	A, Me	V
45	*Echinocactus grusonii*	golden barrel cactus, cojín de suegra	0,01	7	E	O	V
46	*Crassula ovata*	jade plant	0,01	7	E	O	V
47	-	shrub	0,01	7	U	-	V
48	*Malus domestica*	apple tree	0,01	7	E	A, Me	V
49	Familia Poaceae	grass	0,01	7	U	-	V
50	*Ruta chalepensis*	fringed rue	0,01	7	E	Me	V

† Origin: U= unclassified, E= Exotic, N= native

‡ Uses: A= alimentary, B= building, Co= cosmetic, Cr= craft, De=detergent, Dy= dyer, Fo= forager, Fu= fuel, L= lumber, Ma= magical-ritual, Me= medicinal, O= ornamental, T=textile, V=veterinary

§ Type of plant: V= vascular plant, N= non vascular plant

Appendix 3. Animals named by participants of Central Chile.

	Scientific name	Common name	Smith’s S Salience Index	Frequency (%)	Ori-gin†	Type of animal‡	Type of fauna
1	*Canis familiaris*	dog	0,73	80	E	V	Domestic pet
2	*Felis catus*	cat	0,56	77	E	V	Domestic pet
3	*Bos taurus*	cow	0,20	27	E	V	Domestic farm
4	*Columba livia*	Dove	0,17	30	E	V	Wild
5	*Equus caballus*	horse	0,15	23	E	V	Domestic farm
6	*Passer domesticus*	Sparrows	0,15	27	E	V	Wild
7	*Zenaida auriculata*	Eared Dove	0,13	23	N	V	Wild
8	*Myiopsitta monachus*	Argentina's Parrot	0,11	20	E	V	Wild
9	*Lycalopex spp.*	fox	0,11	17	N	V	Wild
10	*Gallus gallus*	hen	0,10	23	E	V	Domestic farm
11	*Oryctolagus cuniculus*	rabbit	0,08	13	E	V	Wild
12	*Turdus falcklandii*	Austral Thrush	0,07	13	N	V	Wild
13	Genus Mus	mouse	0,07	13	E	V	Wild
14	*Zonotrichia capensis*	Rufous-collared Sparrow	0,05	10	N	V	Wild
15	*Liolaemus spp.*	lizard	0,05	10	N	V	Wild
16	Class Insecta	insect	0,04	7	U	I	Unclassified
17	*Lepus europaeus*	hare	0,04	7	E	V	Wild
18	*Sephanoides sephaniodes*	Hummingbird	0,04	7	N	V	Wild
19	Family Anatidae	duck	0,04	10	U	V	Unclassified
20	*Puma concolor*	cougar	0,04	7	N	V	Wild
21	*Vanellus chilensis*	Southern Lapwing	0,04	10	N	V	Wild
22	*Curaeus curaeus*	Austral Blackbird	0,04	7	N	V	Wild
23	*Equus asinus*	donkey	0,03	3	E	V	Domestic farm

24	*Diuca diuca*	Common Diuca-Finch	0,03	3	N	V	Wild
25	Class Aves	bird	0,03	13	U	V	Unclassified
26	*Pudu puda*	pudu	0,03	3	N	V	Wild
27	*Vultur gryphus*	Andean Condor	0,03	7	N	V	Wild
28	*Xolmis pyrope*	Fire-eyed Diucon	0,03	3	N	V	Wild
29	*Mimus tenca*	Chilean Mockingbird	0,03	3	N	V	Wild
30	Order Chiroptera	bat	0,03	7	U	V	Wild
31	Order Pulmonata	slug	0,03	3	U	I	Wild
32	*Capra hircus*	goat	0,03	7	E	V	Domestic farm
33	Class Gastropoda	snail	0,03	3	U	I	Wild
34	*Carduelis barbata*	Black-chinned Siskin	0,03	3	N	V	Wild
35	*Mus musculus*	laucha	0,03	3	E	V	Wild
36	*Phrygilus alaudinus*	Band-tailed Sierra-Finch	0,03	3	N	V	Wild
37	Class Amphibia	amphibian	0,02	3	U	V	Wild
38	Class Arachnida	spider	0,02	7	U	I	Wild
39	*Sus scrofa*	pig	0,02	10	E	V	Domestic farm
40	*Aphrastura spinicauda*	Thorn-tailed Rayadito	0,02	3	N	V	Wild
41	*Falco sparverius*	American Kestrel	0,02	3	N	V	Wild
42	Family Hirundinidae	Swallow	0,02	3	N	V	Wild
43	*Rattus norvegicus*	rat, guaren	0,02	3	E	V	Wild
44	*Tyto alba*	Owl	0,02	7	N	V	Wild
45	*Sturnella loyca*	Long-tailed Meadowlark	0,02	3	N	V	Wild

46	*Milvago chimango*	Chimango Caracara	0,02	3	N	V	Wild
47	*Apis mellifera*	bee	0,02	3	E	I	Domestic farm
48	*Geranoaetus melanoleucus*	Eagle	0,02	3	N	V	Wild
49	*Molothrus bonariensis*	Shiny Cowbird	0,02	3	E	V	Wild
50	*Ovis ammon*	sheep	0,02	3	E	V	Domestic farm
51	Suborder Heterocera	moth	0,02	7	U	I	Wild
52	Family Culicidae	mosquito, zancudo	0,02	3	U	I	Wild
53	Order Hymenoptera	wasp	0,01	3	U	I	Wild
54	*Tachymenis chilensis*	snake	0,01	3	N	V	Wild
55	*Octodon degus*	degu	0,01	3	N	V	Wild
56	Subfamily Anserinae	goose	0,01	3	E	V	Domestic farm
57	*Larus dominicanus*	Seagull	0,01	3	N	V	Wild
58	Family Formicidae	ant	0,01	7	U	I	Wild
59	*Nothoprocta perdicaria*	Chilean Tinamou	0,01	3	N	V	Wild
60	Suborder Oniscidea	chanchitos de tierra	0,01	7	U	I	Wild
61	*Meleagris gallopavo*	Turkey	0,01	7	E	V	Domestic farm
62	*Grammostola rosea*	tarantula, araña pollito	0,01	3	N	I	Wild
63	*Scytodes globula*	tiger spider	0,01	3	N	I	Wild
64	*Callipepla californica*	California Quail	0,01	3	E	V	Wild
65	*Myocastor coypus*	coipo	0,01	3	N	V	Wild
66	*Galea musteloides*	common yellow-toothed cavy, cuyi	0,01	3	N	V	Domestic pet
67	*Leopardus spp.*	wild cat	0,01	3	N	V	Wild
68	Family Muscidae	fly	0,01	3	U	I	Wild

69	*Bombus terrestris*	bumblebee	0,01	7	E	I	Wild
70	Family Salticidae	araña saltadora	0,01	3	U	I	Wild
71	*Theristicus melanopis*	Black-faced Ibis	0,01	3	N	V	Wild
72	*Caracara plancus*	Crested Caracara	0,01	3	N	V	Wild
73	Class Chilopoda	centipede	0,01	3	U	I	Wild
74	Order Lepidoptera	butterfly	0,01	3	U	I	Wild
75	Family Calliphoridae	botfly	0,01	3	U	I	Wild
76	*Galictis cuja*	lesser grison, quique	0,01	3	N	V	Wild
77	Suborder Caelifera	grasshopper	0,01	3	U	I	Wild
78	Order Hymenoptera	wasp	0,00	3	U	I	Wild
79	Family Cicadidae	cicada	0,00	3	U	I	Wild
80	Infraorder Anisoptera	dragon-fly	0,00	3	U	I	Wild

† Origin: E= Exotic, N= Native, U=Unclassified

‡ Type of animal: V= Vertebrate, I= Invertebrate

Appendix 4. Plants named by participants of Central Chile.

	Scientific name	Common name	Smith's S Salience Index	Frequency (%)	Origin†	Uses‡	Type of plant §
1	*Citrus limon*	lemon tree	0,25	40	E	A, Me	V
2	*Citrus sinensis*	orange tree	0,25	37	E	A, Me	V
3	*Mentha spp.*	mint	0,20	27	E	A, Me	V
4	*Ruta chalepensis*	fringed rue	0,19	30	E	Me	V
5	*Zantedeschia aethiopica*	calla lily	0,13	17	E	O	V
6	*Rosa spp.*	rose	0,12	17	E	Co, Me, O	V
7	*Lavandula spp.*	lavender	0,11	17	E	Me, O	V
8	*Salvia rosmarinus*	rosemary	0,11	13	E	A, Me	V
9	*Ficus spp.*	ficus tree	0,10	13	E	O	V
10	*Quillaja saponaria*	quillay	0,09	10	N	Co, De, L, Me	V
11	Family Cactaceaea	cactus	0,09	17	N	A, L, O	V
12	Family Arecaceae	palm tree	0,09	13	U	-	V
13	*Origanum majorana*	oregano	0,08	13	E	A, Me	V
14	Prunus domestica	plum	0,08	13	E	A, Me	V
15	*Laurus nobilis*	bay tree	0,08	13	E	A, Me, O	V
16	*Buddleja globosa*	orange ball tree, matico	0,07	10	N	Dy, Me	V
17	*Matricaria chamomilla*	Chamomile	0,07	13	E	Me	V
18	*Ocimum basilicum*	basil	0,06	13	E	A, Me	V
19	*Eucalyptus globulus*	eucalyptus	0,06	13	E	L, Me	V
20	*Lithrea caustica*	litre	0,06	10	N	A, Fu, L, Me	V

21	*Chlorophytum comosum*	spider plant	0,06	10	E	O	V
22	*Cryptocarya alba*	peumo	0,06	7	N	A, Co, Cr, Dy, Fu, Me	V
23	*Thymus vulgaris*	common thyme	0,06	7	E	A, Me	V
24	*Camelia japónica*	common camellia	0,06	7	E	O	V
25	*Alocasia sp.*	giant taro	0,06	7	E	O	V
26	*Solanum lycopersicum*	tomatoes	0,05	10	E	A, Me	V
27	*Aloe vera*	aloe vera	0,05	13	E	Me	V
28	*Aloysia citrodora*	lemon verbena	0,05	10	E	Me	V
29	-	climbing plant	0,05	7	U	-	V
30	*Lilium spp.*	lily	0,05	7	E	O	V
31	*Persea americana*	avocado	0,05	10	E	A, Me	V
32		succulent	0,05	10	U	-	V
33	*Melissa officinalis*	lemon balm	0,05	10	E	Me	V
34	*Petroselinum crispum*	parsley	0,05	10	E	A, Me	V
35	*Coriandrum sativum*	cilantro	0,04	10	E	A, Me	V
36	*Ligustrum ovalifolium*	korean privet	0,04	10	E	O	V
37	*Mentha pulegium*	poleo	0,04	7	E	Me	V
38	*Robinia pseudoacacia*	black locust	0,04	10	E	A, L	V
39	*Peumus boldus*	boldo	0,04	7	N	A, Dy, L, Me	V
40	*Juglans regia*	walnut	0,04	7	E	A, L, Me	V
41	*Schefflera arboricola*	dwarf umbrella tree	0,04	7	E	O	V

42	*Acacia caven*	roman cassie, espino	0,04	7	N	A, Fu, L, Me	V
43	*Salix babylonica*	weeping willow	0,04	10	E	Me, O	V
44	*Beilschmiedia miersii*	belloto del norte	0,03	3	N	Fo	V
45	*Calendula officinalis*	pot marigold	0,03	3	E	Me, O	V
46	*Plectranthus ciliatus*	speckled spur flower	0,03	3	E	O	V
47	*Fragaria sp.*	strawberry	0,03	3	N	A, Ma, Me	V
48	*Helianthus annuus*	sunflower	0,03	3	E	A, O	V
49	-	fern	0,03	3	U	-	V
50	-	poison ivy	0,03	3	U	-	V
51	*Hydrangea sp.*	hydrangea	0,03	7	E	O	V
52	*Olea europaea*	olive	0,03	7	E	A, Me	V
53	-	grass	0,03	10	U	-	V
54	*Pinus spp.*	pine tree	0,03	17	E	L, Me	V
55	*Populus nigra*	black cottonwood	0,03	3	E	-	V
56	*Borago officinalis*	borage	0,03	3	E	Me	V
57	*Monstera sp.*	swiss cheese plant	0,03	3	E	O	V
58	*Bougainvillea sp.*	paperflower	0,03	3	E	Me, O	V
59	*Puya sp.*	puya, chagual	0,03	3	N	A	V
60	*Prunus pérsica*	peach	0,03	3	E	O	V
61	*Punica granatum*	pomegranate	0,03	3	E	A	V
62	*Plantago major*	broadleaf plantain	0,03	7	E	Me	V

63	*Musa sp.*	banana tree	0,03	3	E	A, Me	V
64	*Trichocereus pachanoi*	san pedro cactus	0,03	3	E	Ma	V
65	*Dracaena sp.*	sansevieria	0,03	3	E	O	V
66	*Araucaria araucana*	monkey puzzle tree	0,02	3	N	A, Cr, L, Ma, Me	V
67	-	shrub	0,02	7	U	-	V
68	*Prunus avium*	cherry tree	0,02	3	E	A	V
69	*Mentha spicata*	spearmint	0,02	3	E	Me	V
70	*Jacaranda mimosifolia*	jacaranda	0,02	7	E	O	V
71	*Eriobotrya japonica*	loquat	0,02	3	E	A, Me	V
72	*Apium graveolens*	celery	0,02	7	E	A	V
73	*Begonia sp.*	begonia	0,02	3	E	O	V
74	*Brugmansia arborea*	angel's trumpet, floripondio	0,02	3	E	O	V
75	*Aristotelia chilensis*	chilean wineberry, maqui	0,02	3	N	A, Co, Dy, L, Ma, Me	V
76	*Chenopodium ambrosioides*	paico	0,02	3	E	Me	V
77	*Viola × wittrockiana*	garden pansy	0,02	3	E	O	V
78	*Platanus orientalis*	old world sycamore	0,02	10	E	O	V
79	*Trifolium sp.*	clover	0,02	3	E	Fo, O	V
80	*Lampranthus sp.*	rayitos de sol	0,02	7	E	O	V
81	*Impatiens walleriana*	busy lizzie, impatiens	0,02	3	E	O	V

82	*Luma apiculata*	arrayan	0,02	3	N	A, L, Me	V
83	*Drminys winteri*	winter's bark, canelo	0,02	3	N	A, Dy, L, Ma, Me	V
84	*Cannabis* sp.	marijuana	0,02	3	E	Me, T	V
85	-	hierba moto	0,02		U	-	V
86	*Malus domestica*	apple tree	0,02	3	E	A, Me	V
87	*Cydonia oblonga*	quince	0,02	7	E	A	V
88	*Philodendron bipinnatifidum*	horsehead philodendron	0,02	3	E	O	V
89	*Phycella cyrtanthoides*	añañuca	0,01	3	N	-	V
90	*Ficus carica*	fig tree	0,01	3	E	A, Me	V
91	*Ugni molinae*	chilean guava, murta	0,01	3	N	A, Me	V
92	*Philodendron cordatum*	filodendro cordatum	0,01	3	E	O	V
93	*Verbena officinalis*	Vervain	0,01	3	E	Ma, Me	V
94	*Lactuca sativa*	lettuce	0,01	7	E	A, Me	V
95	*Artemisia absinthium*	wormwood, ajenjo	0,01	7	E	Me	V
96	*Greigia sphacelata*	chupones	0,01	3	N	Cr	V
97	*Allium schoenoprasum*	chives	0,01	3	E	A	V
98	*Cupressus sp.*	cypress	0,01	3	E	O	V
99	*Ficus benjamina*	benjamin fig	0,01	3	E	O	V
100	*Nelumbo sp.*	lotus flower	0,01	3	E	O	V
101	*Urtica dioica*	nettle	0,01	3	E	A, Me	V
102	*Quercus sp.*	oak	0,01	3	E	L, O	V
103	*Stevia rebaudiana*	candyleaf	0,01	3	E	A	V

104	*Pasithea caerulea*	azulillo	0,01	3	N	-	V
105	*Beta vulgaris*	beetroot	0,01	3	E	A	V
106	-	common flowers	0,01	3	U	-	V
107	*Jasminum spp.*	jasmine	0,01	3	E	O	V
108	*Maytenus boaria*	maiten	0,01	3	N	A, Dy, L, Me	V
109	*Capsicum annuum*	bell pepper	0,01	3	N	A, Me	V
110	*Capsicum baccatum*	chili pepper	0,00	3	N	A, Me	V
111	*Juncus sp.*	rush	0,00	3	N	Cr	V
112	*Mimosa sp.*	touch-me-not	0,00	3	E	O	V
113	*Liriodendron tulipifera*	tulip tree	0,00	3	E	O	V
114	*Brassica campestris*	yuyo	0,00	3	E	A	V
115	*Ficus elástica*	rubber tree	0,00	3	E	O	V

† Origin: U= unclassified, N= native, E= exotic

‡ Uses: A= alimentary, B= building, Co= cosmetic, Cr= craft, De=detergent, Dy= dyer, Fo= forager, Fu= fuel, L= lumber, Ma= magical-ritual, Me= medicinal, O= ornamental, T=textile, V=veterinary

§ Type of plant: V= vascular plant, N= non vascular plant

Appendix 5. Animals named by participants of Southern Chile.

	Scientific Name	Common name	Smith's S Salience Index	Frequency (%)	Origin†	Type of animal ‡	Type of Fauna
1	*Canis familiaris*	dog	0,30	39	E	V	Domestic pet
2	*Bos taurus*	cow	0,28	39	E	V	Domestic farm
3	*Felis catus*	cat	0,25	39	E	V	Domestic pet
4	*Lycalopex spp.*	fox	0,21	7	N	V	Wild
5	*Puma concolor*	cougar	0,20	29	N	V	Wild
6	*Gallus gallus*	hen	0,18	29	E	V	Domestic farm
7	*Theristicus melanopis*	Black-faced Ibis	0,18	36	N	V	Wild
8	*Equus caballus*	horse	0,17	43	E	V	Domestic farm
9	*Ovis ammon*	sheep	0,16	21	E	V	Domestic farm
10	*Sephanoides sephaniodes*	Hummingbird	0,15	25	N	V	Wild
11	*Vanellus chilensis*	Southern Lapwing	0,14	25	N	V	Wild
12	*Oryctolagus cuniculus*	rabbit	0,13	18	E	V	Wild
13	*Lepus europaeus*	hare	0,12	14	E	V	Wild
14	*Dromiciops gliroides*	little mountain monkey, monito del monte	0,11	11	N	V	Wild
15	Family Hirundinidae	Swallow	0,10	21	N	V	Wild
16	*Turdus falklandii*	Austral Thrush	0,09	14	N	V	Wild
17	*Sus scrofa*	pig	0,09	14	E	V	Domestic farm
18	*Parabuteo unicinctus*	Harris's Hawk	0,08	11	N	V	Wild
19	*Leopardus guigna*	kodkod, güiña	0,08	11	N	V	Wild
20	*Sturnella loyca*	Long-tailed Meadowlark	0,07	14	N	V	Wild
21	*Milvago chimango*	Chimango Caracara	0,07	25	N	V	Wild
22	*Lycalopex culpaeus*	zorro culpeo	0,07	32	N	V	Wild
23	Family Laridae	Seagull	0,06	11	N	V	Wild
24	*Passer domesticus*	Sparrow	0,06	7	E	V	Wild

25	*Patagioenas araucana*	Chilean Pigeon	0,06	7	N	V	Wild
26	*Lycalopex griseus*	south american grey fox, zorro chilla	0,06	7	N	V	Wild
27	*Zenaida auriculata*	Eared Dove	0,06	11	N	V	Wild
28	*Campephilus magellanicus*	Magellanic Woodpecker	0,06	11	N	V	Wild
29	*Myocastor coypus*	coipo	0,06	14	N	V	Wild
30	*Ceryle torquata*	Ringed Kingfischer	0,06	11	N	V	Wild
31	Suborder Oniscidea	chanchito de tierra	0,05	7	U	I	Wild
32	Family Lumbricidae	worm	0,04	7	U	I	Wild
33	Genus Mus	mouse	0,04	11	E	V	Wild
34	*Vultur gryphus*	Andean Condor	0,03	7	N	V	Wild
35	*Anas geórgica*	Yellow-billed Pintail	0,03	4	N	V	Wild
36	*Curaeus curaeus*	Austral Blackbird	0,03	7	N	V	Wild
37	*Egretta thula*	Great Egret	0,03	7	N	V	Wild
38	*Ardea alba*	Snowy Egret	0,03	7	N	V	Wild
39	*Anairetes parulus*	Tufted Tit-Tyrant	0,03	4	N	V	Wild
40	*Capra hircus*	goat	0,03	7	E	V	Domestic farm
41	*Callipepla californica*	California Quail	0,03	7	E	V	Wild
42	Subfamily Anserinae	goose	0,03	4	E	V	Domestic farm
43	*Anas flavirostris*	Speckled Teal	0,03	4	N	V	Wild
44	*Colaptes pitius*	Chilean Flicker	0,03	11	N	V	Wild
45	*Pudu puda*	southern Pudu	0,03	11	N	V	Wild
46	Xolmis pyrope	Fire-eyed Diucon	0,03	4	N	V	Wild
47	Family Formicidae	ants	0,03	4	U	I	Wild
48	*Sus scrofa*	wild pig	0,03	4	E	V	Wild
49	*Aegla laevis*	pancora	0,03	4	N	I	Wild
50	Family Anatidae	duck	0,03	7	U	V	Unclassified

51	*Nothoprocta perdicaria*	Chilean Tinamou	0,03	7	N	V	Wild
52	*Columba livia*	Dove	0,02	7	E	V	Wild
53	*Apis mellifera*	Bee	0,02	4	E	I	Domestic farm
54	*Buteo polyosomo*	Variable Hawk	0,02	4	N	V	Wild
55	*Tachuris rubrigastra*	Many-colored Rush-Tyrant	0,02	4	N	V	Wild
56	Subfamily Anserinae	swan	0,02		N	V	Wild
57	*Meleagris gallopavo*	Turkey	0,02	7	E	V	Domestic farm
58	Class Arachnida	spiders	0,02	4	U	I	Wild
59	-	gallinetas	0,02	4	U	V	Domestic farm
60	*Coragyps atratus*	Black Vulture	0,02	4	N	V	Wild
61	Family Psittacidae	parrot	0,02	7	U	V	Wild
62	Superclass Osteichthyes	fish	0,02	4	U	V	Unclassified
63	*Mimus tenca*	Chilean Mockingbird	0,02	4	N	V	Wild
64	*Caracara plancus*	Crested Caracara	0,02	4	N	V	Wild
65	*Chloephaga sp.*	avutarda	0,01	4	N	V	Wild
66	*Nycticorax nycticorax*	Black-crowned Night-Heron	0,01	4	N	V	Wild
67	*Hippocamelus bisulcus*	south andean deer, huemul	0,01	4	N	V	Wild
68	Class Aves	bird	0,01		U	V	Unclassified
69	*Diuca diuca*	Common Diuca-Finch	0,01	4	N	V	Wild
70	Genus Salmo	salmon	0,01	4	U	V	Domestic farm
71	*Forficula auricularia*	earwig	0,01	4	E	I	Wild
72	*Aphrastura spinicauda*	Thorn-tailed Rayadito	0,01	7	N	V	Wild
73	*Cincloides patagonicus*	Dark-bellied Cinclodes	0,01	4	N	V	Wild
74	*Chiasognathus grantii*	stag beetle, ciervo volante	0,01	4	N	I	Wild
75	*Pygarrhichas albogularis*	White-throated Treerunner	0,01	4	N	V	Wild
76	*Elaenia albiceps*	White-crested Elaenia	0,01	4	N	V	Wild

77	*Parastacus pugnax*	land shrimp	0,00	4	N	I	Wild
78	*Picoides lignarius*	Striped Woodpecker	0,00	4	N	V	Wild
79	*Conepatus chinga*	molina's hog-nosed skunk, chingue	0,00	4	N	V	Wild
80	*Genus Salmo*	chinok	0,00	4	E	V	Wild
81	*Scelorchilus rubecula*	Chucao Tapaculo	0,00	7	N	V	Wild
82	*Scytalopus magellanicus*	Andean Tapaculo	0,00	4	N	V	Wild
83	*Pteroptochos tarnii*	Black-throated Huet-huet	0,00	4	N	V	Wild

† Origin: E= Exotic, N= Native, U=Unclassified

‡ Type of animal: V= Vertebrate, I= Invertebrate

Appendix 6. Plants named by participants of Southern Chile.

	Scientific name	Common name	Smith's S Salience Index	Frecuen-cy (%)	Origin †	Uses‡	Type of plant§
1	*Nothofagus obliqua*	hualle, roble	0,31	43	N	Cr, Dy, L, Ma, Me	V
2	*Aristotelia chilensis*	chilean wineberry, maqui	0,21	25	N	A, Co, Dy, L, Ma, Me	V
3	*Mentha spp.*	mint	0,21	32	E	A, Me	V
4	*Peumus boldus*	boldo	0,20	39	N	A, Dy, Fu,L, Me	V
5	*Pinus spp.*	pine tree	0,20	43	E	L	V
6	*Luma apiculata*	arrayan	0,20	29	N	A, L, Me	V
7	*Prunus avium*	cherry tree	0,18	36	E	A, Me	V
8	*Araucaria araucana*	monkey puzzle tree	0,18	25	N	A, Cr, L, Ma, Me	V
9	*Malus domestica*	apple tree	0,12	25	E	A, Me	V
10	*Laurelia sempervirens*	chilean laurel	0,11	18	N	A, Cr,Fu, L, Ma, Me	V
11	*Cryptocarya alba*	peumo	0,11	14	N	A, Co, Cr, Dy, Fu, Me	V
12	*Matricaria chamomilla*	chamomile	0,10	21	E	Me	V
13	*Nothofagus donmeyi*	coigüe	0,10	14	N	Dy, L	V
14	*Ruta chalepensis*	fringed rue	0,10	21	E	Me	V
15	*Castanea sativa*	chestnut	0,09	18	E	A, L	V
16	*Drimys winteri*	winter's bark, canelo	0,09	18	N	A, Dy, L, Ma, Me	V
17	*Taraxacum officinale*	dandelion	0,09	11	E	A, Me	V
18	*Prunus persica*	peach	0,09	21	E	A, Me	V
19	*Acacia dealbata*	silver wattle	0,08	14	E	O	V

20	Rosa sp.	rose	0,08	18	E	Co, Me, O	V
21	*Gevuina avellana*	avellano	0,08	14	N	A, Co, Dy, Fo, L, Ma, Me	V
22	*Eucalyptus globulus*	eucalyptus	0,08	11	E	L, Me	V
23	*Melissa officinalis*	lemon balm	0,07	18	E	Me	V
24	*Buddleja globosa*	orange ball tree, matico	0,07	11	N	Dy, Me	V
25	*Prunus domestica*	plum	0,06	14	E	A, Me	V
26	*Origanum majorana*	oregano	0,06	11	E	A, Me	V
27	-	succulent	0,06	7	U	-	V
28	*Hydrangea sp.*	hydrangea	0,06	7	E	O	V
29	*Lapageria rosea*	chilean bellflower, copihue	0,05	14	N	A, Cr, Ma, Me	V
30	*Ugni molinae*	chilean guava, murta	0,05	14	N	A	V
31	*Salix babylonica*	weeping willow	0,05	11	E	Me, O	V
32	*Maytenus boaria*	maiten	0,05	11	N	A, Dy, Ma, Me	V
33	*Quillaja saponaria*	quillay	0,05	7	N	Co, De, L, Me	V
34	*Chusquea culeou*	clilean bamboo, coligüe	0,05	11	N	A, B, Cr, Me	V
35	*Salvia rosmarinus*	rosemary	0,04	11	E	A, Me	V
36	Class Filicopsida (or Pterophyta)	fern	0,04	7	U	-	V
37	*Zantedeschia aethiopica*	calla lily	0,04	11	E	O	V
38	*Podocarpus spp.*	mañio	0,04	7	N	-	V

39	*Acacia melanoxylon*	Australian blackwood	0,04	4	E	O	V
40	*Primula auricula*	bear's ear	0,04	4	E	O	V
41	*Subdivisión Angiospermae o Magnoliophyta*	flower, rayen	0,04	4	U	-	V
42	*Robinia pseudoacacia*	black locust	0,03	4	E	A, L	V
43	*Conium maculatum*	poison hemlock	0,03	4	E	Me	V
44	*Juglans regia*	walnut	0,03	7	E	A, L, Me	V
45	*Hypochaeris radicata*	cat's ear, hierba del chancho	0,03	4	E	A	V
46	*Mentha pulegium*	poleo	0,03	4	E	Me	V
47	*Rubus idaeus*	raspberry	0,03	4	E	A	V
48	*Ficus carica*	fig tree	0,03	4	E	A, Me	V
49	*Vaccinium corymbosum*	blueberry	0,03	4	E	A	V
50	*Embothrium coccineum*	chilean firebush	0,03	4	N	A, Cr, Dy, L, Me, V	V
51	*Otholobium glandulosum*	culen	0,03	4	N	A, Me	V
52	*Azara serrata*	corcolen	0,03	4	N	Ma, Me	V
53	*Equisetum bogotense*	andean horsetail	0,03	4	N	Me	V
54	*Iris spp.*	iris	0,03	4	E	Me, O	V
55	*Cestrum parqui*	green cestrum, palqui	0,03	4	N	Ma, Me	V
56	-	arbol trebol	0,03	4	U	-	V
57	Family Cactaceae	cactus	0,03	4	U	A, L	V
58	*Persea lingue*	lingue	0,03	7	N	Cr, Dy, L	V
59	*Magnolia sp.*	magnolia, magnolio	0,03	4	E	O	V

60	*Gunnera tinctoria*	giant rhubarb, nalca	0,03	4	N	A, Me	V
61	*Eriobotrya japonica*	loquat	0,03	4	E	A, Me	V
62	*Chenopodium ambrosioides*	paico	0,03	4	E	Me	V
63	*Beta vulgaris*	chard	0,02	4	E	A, Me	V
64	*Amomyrtus luma*	luma	0,02	4	N	-	V
65	*Berberis spp.*	michay	0,02	7	N	A	V
66	*Rubus ulmifolius*	blackberry	0,02	4	E	A, Me	V
67	*Rosa eglanteria*	sweet briar, mosqueta	0,02	7	E	A, Me	V
68	*Adesmia spp.*	paramela	0,02	4	N	-	V
69	*Solanum lycopersicum*	tomatoes	0,02	4	E	A, Me	V
70	*Tristerix corymbosus*	quintral	0,02	4	N	A, Dy, Me	V
71	*Nothofagus alpina*	rauli beech	0,02	4	N	L, Ma	V
72	*Eucryphia cordifolia*	ulmo	0,02	4	N	Dy, Fu, L, Me	V
73	*Lomatia hirsuta*	radal	0,02	4	N	-	V
74	*Acacia caven*	roman cassie, espino	0,02	4	N	A, Fu, L, Me	V
75	*Bellis perennis*	daisy	0,02	7	E	Me	V
76	*Schoenoplectus californicus*	sedge, totora	0,02	7	N	B, Cr, Me	V
77	*Hypericum perforatum*	st. John's wort	0,02	4	E	Me	V
78	*Laurus nobilis*	bay tree	0,01	4	E	A, Me, O	V
79	*Lithrea caustica*	litre	0,01	4	N	A, Fu, L, Me	V
80	*Familia Arecaceae*	palm tree	0,01	4	U	-	V
81	*Vitis vinifera*	vine	0,01	4	E	A	V
82	*Petunia spp.*	petunia	0,01	4	E	O	V
83	*Spartium junceum*	spanish broom	0,01	4	E	Me	V

84	*Laureliopsis philippiana*	tepa	0,01	4	N	L, Ma, Me	V
85	*Discaria trinervis*	chacay	0,01	4	N		V
86	*Coriandrum sativum*	cilantro	0,01	4	E	A, Me	V
87	*Dahlia spp.*	dahlia	0,01	4	E	O	V
88	*Plantago major*	broadleaf plantain	0,01	4	E	Me	V
89	*Salix viminalis*	basket willow, mimbre	0,01	4	E	Cr	V
90	*Hibiscus spp.*	hibiscus	0,01	4	E	O	V
91	*Pyrus communis*	pear tree	0,01	4	E	A, Me	V
92	*Fitzroya cupressoides*	patagonian cypress, alerce	0,01	7	N	Cr, L, Me	V
93	*Aloysia citrodora*	lemon verbena	0,01	4	E	Me	V
94	*Cortaderia araucana*	pampas Grass, cola de zorro	0,01	4	N	Cr	V
95	*Prunus cerasus*	sour cherry	0,01	7	E	A, Me	V
96	*Urtica dioica*	nettle	0,01	4	E	A, Me	V
97	*Jubaea chilensis*	chilean palm	0,01	4	N	A, B, Co, Cr, Ma	V
98	*Rhododendron spp.*	rhododendrons	0,00	4	E	O	V
99	*Quercus robur*	common oak	0,00	4	E	Me, O	V
100	*Helianthus annuus*	sunflower	0,00	4	E	A, O	V
101	*Petroselinum crispum*	parsley	0,00	4	E	A, Me	V

† Origin: U= unclassified, N= native, E= exotic

‡ Uses: A= alimentary, B= building, Co= cosmetic, Cr= craft, De=detergent, Dy= dyer, Fo= forager, Fu= fuel, L= lumber, Ma= magical-ritual, Me= medicinal, O= ornamental, T=textile, V=veterinary

§ Type of plant: V= vascular plant, N= non vascular plant