Chapter 5
Vegetation of Patagonia

Alejandro Jorge Bisigato and Mónica Beatriz Bertiller

Abstract In this chapter, we describe the major phytogeographic provinces of Patagonia. Emphasis is placed on physiognomic vegetation formations, internal heterogeneity, and degree of anthropic disturbance. Main vegetation formations within provinces include temperate forests, steppes, moorlands, and shrublands. Internal plant heterogeneity is high in all provinces and is associated with climate, soils, altitude, and natural (e.g., volcanism) or anthropogenic disturbances. The most important anthropogenic disturbance varies among provinces in relation to vegetation formations. Domestic grazing is a widespread disturbance agent in steppes and shrublands, while oil and natural gas extraction may also cause disturbances affecting local plant communities in some areas. In contrast, clearing for agriculture and afforestation are common in temperate forests. Invasion of exotic plants and animals are also a threat for the conservation of pristine vegetation. Disturbances, together with the ongoing climate change, can strongly influence vegetation structure and functioning that in turn could affect populations of wild animals, particularly lizards.

Keywords Patagonia · Vegetation heterogeneity · Climate · Disturbance · Grazing · Deforestation/afforestation

5.1 Introduction

Patagonian vegetation encompasses a wide range of physiognomic vegetation formations from forests to arid steppes and moorlands. In general, most studies of Patagonian vegetation were restricted either to Chilean (e.g., Quintanilla Pérez 1985, 1989; Gajardo 1994; Luebert and Pliscoff 2006) or Argentinean Patagonia (e.g., Soriano 1956, 1983; León et al. 1998). Syntheses attempting to gather descriptions

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of vegetation made in both countries are infrequent (e.g., Heusser 2003; Gut 2008) mainly due to different approaches, perspectives, and methods used to delimit different "vegetation units." As in the rest of this book, we refer to Patagonia as the area delimited by the Tinguiririca, Atuel, Salado, Chadileuvu, and Colorado rivers. Following Morrone (2001a) and Morrone (2004, 2006), most of this area belongs to the Andean Region. Only the northern extreme in the Argentinean Patagonia occupies part of the South American transition zone (Urtubey et al. 2010), to which Morrone reassigned some provinces previously ascribed to the Neotropical region (Morrone 2004, 2006). Overall, we followed the classification of Morrone (2001a), who in his book *Biogeografía de América Latina y el Caribe* analyzed Patagonian vegetation without restrictions due to country limits, along with subsequent descriptions modifying some boundaries among provinces in Morrone (2014, 2015). The names of some provinces (but not their limits) were modified according to more recent works (e.g., Morrone and Ezcurra 2016).

Patagonian vegetation mirrors the marked climatic differences across the region imposed by the elevation of the Andes Mountains, disrupting the large-scale circulation of air masses. In fact, the Andes have a critical influence in determining the climate of Patagonia by imposing a barrier for humid air masses from the Pacific Ocean. As a consequence, most of water is discharged at the west slope of the Andes (on the Chilean side) and dry and hot air descends at the east side of the Andes over the Argentinean Patagonia (Paruelo et al. 1998; Labraga and Villalba 2009). Accordingly, forests and moorlands occupy most of the Chilean Patagonia, whereas the largest area of the Argentinean Patagonia is part of the South American Arid Diagonal covered by steppes, semideserts, and shrublands. In this context, Patagonian forests have evolved since the Pliocene in isolation from other South American forests being more closely related to Australian and New Zealand forests (Villagrán and Hinojosa 1997; Villagrán and Armesto 2005). Latitude, as a surrogate of temperature, also affects plant distribution along this extended region. For example, the tree line is at 2150 m at 33° S but descends to 350 m at 55° S (Heusser 2003). Vegetation heterogeneity due to differences in soil attributes is also present at finer scales than those imposed by climate (e.g., Rueter and Bertolami 2010; Palacio et al. 2014; Casalini and Bisigato 2017). Across Patagonia, azonal plant communities occupy small areas with particular soil attributes conditioning higher or lower water availability than at zonal communities. For example, azonal wet meadows, locally known as *mallines*, with more mesic vegetation than the surrounding steppes may be found in arid Patagonia (Soriano 1983; Buono et al. 2010; Gaitán et al. 2011). Similarly, a strong local soil-vegetation relationship may be found at the forest humid sites, where zonal forest vegetation may include patches of azonal grasslands and *Sphagnum* bogs (Holdgate 1961). Despite this, only regional zonal vegetation formations will be considered in this chapter.

In the next sections we present a general description of vegetation of the Patagonian phytogeographic provinces including dominant physiognomies, the most common species, and a mention of their internal heterogeneity. A detailed description (and mapping) of vegetation units inside provinces (e.g., districts) is out of the scope of this chapter, since previous studies provided excellent detailed descriptions (e.g., Soriano 1956; Gajardo 1994; León et al. 1998; Luebert and Pliscoff 2006). Furthermore, there are many studies describing and mapping plant assemblages in different areas of Patagonia (e.g., Bertiller et al. 1981, 2017; Quintanilla Pérez 1985, 1989; Beeskow et al. 1987; Rueter and Bertolami 2010; Bisigato et al. 2016). Due to its extension and great variability, we exceptionally briefly describe subprovinces within the Patagonian Province. Plant nomenclature follows *Flora Argentina* (http://www.floraargentina.edu.ar/) for Argentinean species and *Catálogo de las Plantas Vasculares de Chile* (Rodríguez et al. 2018) for the Chilean flora. Authorities for species names are detailed in Appendix.

5.2 Phytogeographic Provinces

5.2.1 South American Transition Zone

5.2.1.1 Monte Province

The Monte Province occupies 526,000 km^2 in west Argentina (Bisigato et al. 2009) but only 280,300 km^2 cover the northeastern Argentinean Patagonia. This portion of the territory is located east of the isotherm of 13° C, reaching 44° S (Morrone 2001a; Rundel et al. 2007; Abraham et al. 2009; Oyarzábal et al. 2018) (Fig. 5.1). Precipitation ranges from 116 to 200 mm (Labraga and Villalba 2009, Coronato [Chap. 2]). Vegetation is characterized by shrubby plant communities dominated by species of the genus *Larrea* (*L. divaricata*, *L. nitida*, *L. ameghinoi*, and *L. cuneifolia*; Fig. 5.2). Other common shrubs are *Prosopis flexuosa*, *P. alpataco*, *Prosopidastrum striatum*, *Monttea aphylla*, *Bougainvillea spinosa*, *Condalia microphylla*, and several species of the genus *Lycium*, *Chuquiraga*, and *Gutierrezia* (León et al. 1998; Oyarzábal et al. 2018). Grasses of the genus *Poa*, *Pappostipa*, and *Nassella* are common, especially at the southern extreme of this province. In general, plant cover is low but it increases near the Atlantic Ocean due to greater precipitation (León et al. 1998). In this area, small groups of *Geoffroea decorticans* individuals are common. Overgrazing is a widespread disturbance (Bisigato and Bertiller 1997; Tadey 2006; Villagra et al. 2009), but impacts by vegetation removal for hydrocarbon extraction are particularly important in the north (Neuquén Province) (Radovani et al. 2014). Wildfires are also common (Hardtke et al. 2011) deeply affecting vegetation structure and function (Rostagno et al. 2006; Villagra et al. 2009).

5.2.1.2 Cuyan High Andean Province

The Cuyan High Andean Province, originally named Prepuna Province (Morrone 2001a), extends mainly in western Argentina, reaching neighboring areas in central Chile, north of 38° S (Morrone and Ezcurra 2016) (Fig. 5.1). It includes several of the highest mountains of South America. Climate is windy and very cold (Arroyo

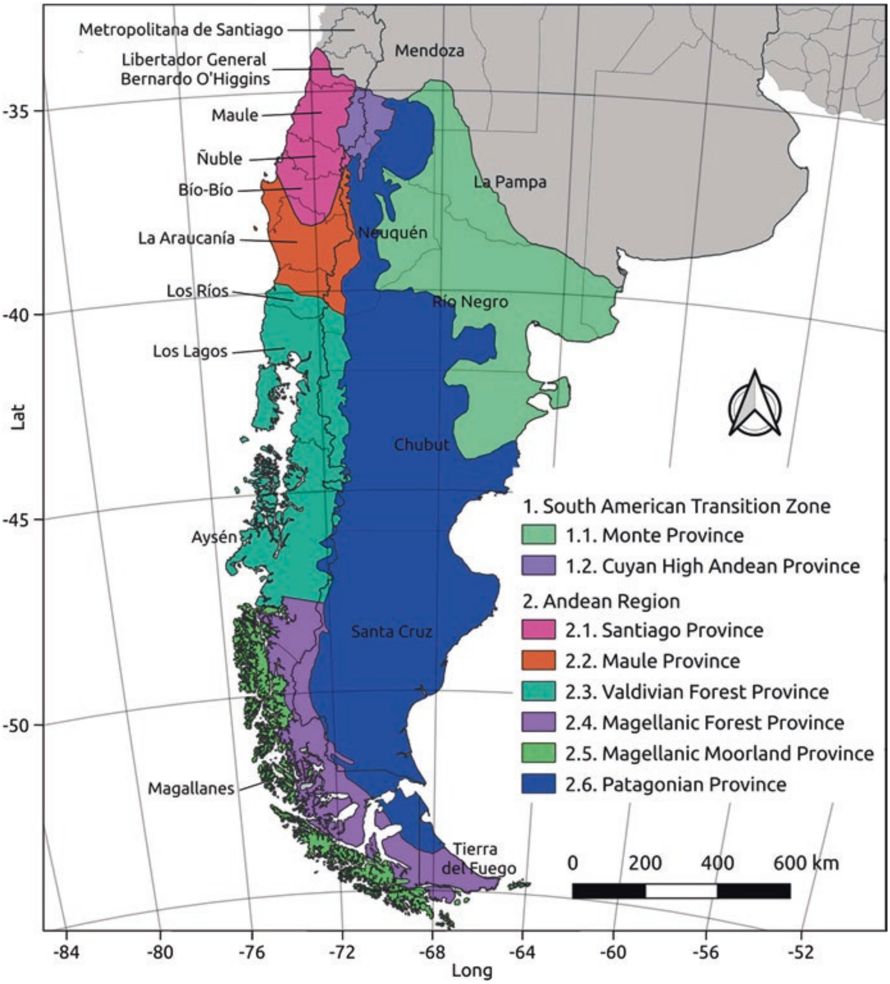

Fig. 5.1 Vegetation map of Patagonia. Redrawn from Romano (2017) showing the phytogeographical provinces and administrative divisions (regions in Chile and provinces in Argentina). We modified the northeastern limit of the Monte Province following Oyarzábal et al. (2018) and the western limit of the Cuyan High Andean Province following Luebert and Pliscoff (2006)

and Cavieres 2013). Only the southern extreme of this province is included in Patagonia, covering 19,900 km^2. Dominant species are a mixture of perennial herbs, low rounded shrubs, and cushion plants (Fig. 5.3): *Senecio algens*, *Oxalis compacta*, *Oxalis adenophylla*, *Pozoa coriacea*, *Laretia acaulis*, *Berberis empetrifolia*, *Chuquiraga oppositifolia,* and *Discaria articulata* (Luebert and Pliscoff 2006; Arroyo and Cavieres 2013; Oyarzábal et al. 2018).

Fig. 5.2 Monte Province. Dominant *Larrea divaricata* shrublands in the southern portion in Chubut, Argentina (Photo: A. Bisigato)

Fig. 5.3 Cuyan High Andean Province near Laguna del Maule, Chile (Photo: L. Avila)

5.2.2 Andean Region

5.2.2.1 Santiago Province

The Santiago Province is located north of 38° S and is the most arid province among the Chilean Patagonian provinces (Fig. 5.1). This is partially due to low precipitation induced by the coastal cordillera, but mostly to high temperatures and a summer dry season (Heusser 2003; Armesto et al. 2007). Only the southern tip of this province (62,900 km^2) is included in the Patagonian region, as defined in this book. Scrublands are the dominant physiognomy, although small Mediterranean woodlands can also be found (Morrone 2001a). Dominant species are *Vachellia caven*, *Peumus boldus*, *Fabiana imbricata*, *Lithraea caustica*, and *Quillaja saponaria* (Gajardo 1994; Heusser 2003; Luebert and Pliscoff 2006). Major threats to conservation are deforestation, wildfires, overgrazing, firewood collection, afforestation with exotic tree species, and invasion of exotic species (Morrone 2001a; Lara et al. 2012).

5.2.2.2 Maule Province

The Maule Province occupies 59,000 km^2 in Chile and Argentina, south of the province of Santiago (38° to 40° S, Fig. 5.1) (Morrone 2000; Gut 2008). Climate is humid and temperate without a dry season. Pristine vegetation is mostly represented by a deciduous forest, but it was almost completely converted to agricultural land (Gajardo 1994; Heusser 2003; Lara et al. 2012). In the few relicts of native vegetation, the dominant species is *Nothofagus obliqua*, but other cogeneric species are also common (*N. dombeyi*, and *N. alpina*). Different communities, co-dominated by *Austrocedrus chilensis*, *Laurelia sempervirens*, *Podocarpus saligna*, *Dasyphyllum diacanthoides*, *Cryptocarya alba*, and/or *Persea lingue* are distinguishable (Gajardo 1994; Heusser 2003; Luebert and Pliscoff 2006). On the coastal cordillera, pristine vegetation is co-dominated by *N. obliqua* and *Gomortega keule*, but it was almost completely replaced by *Pinus radiata* plantations. Primeval vegetation on the central valley was dominated by *N. obliqua*, accompanied by *N. dombeyi* at the north and by *L. sempervirens* at the south. Small forests of *Araucaria araucana* and *Nothofagus pumilio* can be found at altitudes higher than 1000 m (Fig. 5.4). Deforestation and afforestation with exotic tree species are the most important risks for vegetation conservation (Morrone 2001a; Lara et al. 2012; Franzese et al. 2017).

5.2.2.3 Valdivian Forest Province

The Valdivian Forest Province occupies 166,000 km^2 in Chile and Argentina, south of the Maule Province reaching 47° S (Morrone 2000, Fig. 5.1). Climate is cold, wet, and cloudy. In contrast to Maule Province, evergreen forest is the prevailing

Fig. 5.4 Maule Province. *Araucaria araucana* forest in Neuquén, Argentina (Photo: M. Bertiller)

physiognomy (Fig. 5.5). Deciduous forests are restricted to high altitudes on the coastal cordillera and the Andes. Tree canopies commonly reach 40 m in height. Lianas (e.g., *Hydrangea serratifolia*, *Griselinia ruscifolia*, etc.), epiphytic ferns (*Hymenophyllum caudiculatum* and *Polypodium feuillei*), and bamboo (*Chusquea quila*) are common (Heusser 2003). Near the coast, plant communities are dominated by *Aextoxicon punctatum* and *Eucryphia cordifolia.* Inland, dominant species are *Nothofagus dombeyi*, *Laureliopsis philippiana*, *Luma apiculata*, *Podocarpus nubigena*, *Fitzroya cupressoides*, *Saxegothaea conspicua*, *Weinmannia trichosperma*, and *Laurelia sempervirens* (Gajardo 1994; Heusser 2003; Luebert and Pliscoff 2006). *Nothofagus nitida* and *Podocarpus nubigena* dominate in the north of the island of Chiloé, while *Pilgerodendron uviferum* and *Tepualia stipularis* do it in the south. Vegetation of this province is very heterogeneous. It is partially due to its large latitudinal range, but also to altitudinal gradients and the presence of natural (volcanism) and anthropic disturbances (agriculture, afforestation, and fire). Some authors split this extensive province in two (e.g., Heusser 2003), reserving the name of Valdivian forest for the most diverse and dense communities found in the north.

5.2.2.4 Magellanic Forest Province

The Magellanic Forest Province goes from 47° S to Cape Horn, covering 107,000 km^2 (Morrone 2000; Fig. 5.1). It is located inland from the Magellanic Moorland Province. It is discontinued by the presence of fjord-like channels, glaciers, and ice fields and intermingled with moorlands. Most of this province lies in Chile, but it reaches Argentina in western Santa Cruz and Tierra del Fuego.

Fig. 5.5 Valdivian Forest Province. Evergreen forest in Termas del Amarillo Provincial Park, Chile (Photo: M. Bertiller)

Nothofagus betuloides is especially abundant in this province (Fig. 5.6). Other common species are *Maytenus disticha*, *Drimys winteri*, *N. pumilio*, and *N. antarctica*. The last species partially replaces *N. pumilio* to the east, where precipitation is low (Gajardo 1994; Heusser 2003; Luebert and Pliscoff 2006). In the periglacial areas a community co-dominated by *N. antarctica* and *Gunnera magellanica* is found (Gajardo 1994). Exotic animals (e.g., American beaver (*Castor canadensis*) and European rabbits (*Oryctolagus cuniculus*)) have deeply affected vegetation of this province, mainly in Tierra del Fuego (Jaksic 1998; Bortolus and Schwindt 2006; Baldini et al. 2008).

5.2.2.5 Magellanic Moorland Province

The Magellanic Moorland Province occupies 55,300 km^2 in southern Chile, although marginally reaches Argentina in Tierra del Fuego, between the coast and the Magellanic Forest Province (Morrone 2000; Fig. 5.1). Climate is humid (annual precipitation generally reaches 4000 mm), windy, and cold (Arroyo et al. 2005). As the province's name indicates, dominant physiognomy is the moorland. More or less

Fig. 5.6 Magellanic Forest Province. Nothofagus forest in Torres del Paine National Park, Chile (Photo: M. Bertiller)

extended areas of exposed rocks are common. Most frequent species are *Empetrum rubrum*, *Oreobolus obtusangulus*, *Astelia pumila*, *Donatia fascicularis*, *N. betuloides*, *N. pumilio*, and *Sphagnum magellanicum* (Gajardo 1994; Arroyo et al. 2005). Tree species are restricted to well-drained areas sheltered from cold winds (Heusser 2003; Arroyo et al. 2005). As a consequence of its inaccessibility, disturbances are rare and mostly restricted to areas with tree cover (Arroyo et al. 2005).

5.2.2.6 Patagonian Province

The Patagonian Province occupies 549,300 km^2 most of them at southwestern Argentina, from Mendoza to Tierra del Fuego (Morrone 2001b) and only a small area in southern Chile. Plant physiognomy varies greatly across this extensive province, from semideserts and shrub steppes at central Patagonia to grass steppes at southern and western Patagonia (Paruelo et al. 2007). Accordingly, five main subprovinces can be defined (Payunia, Subandean, Western Patagonian, Central, and Magellanic; León et al. 1998; Morrone 2015). The Payunia Subprovince covers southern Mendoza and northern Neuquén associated with volcanic hills with sandy and basaltic soils. Vegetation are shrub steppes dominated by *Azorella prolifera* at the highest sites and by *Stillingia patagonica*, *Anarthrophyllum rigidum*, *Ephedra ochreata*, and *Colliguaja integerrima* at mid-altitudes (León et al. 1998). West from the Valdivian Forest and the Magellanic Forest Provinces, the Subandean Patagonian Subprovince is represented by a grass steppe dominated by the perennial grass *Festuca pallescens* among other perennial grasses (*Bromus setifolius*, *F. pyrogea*,

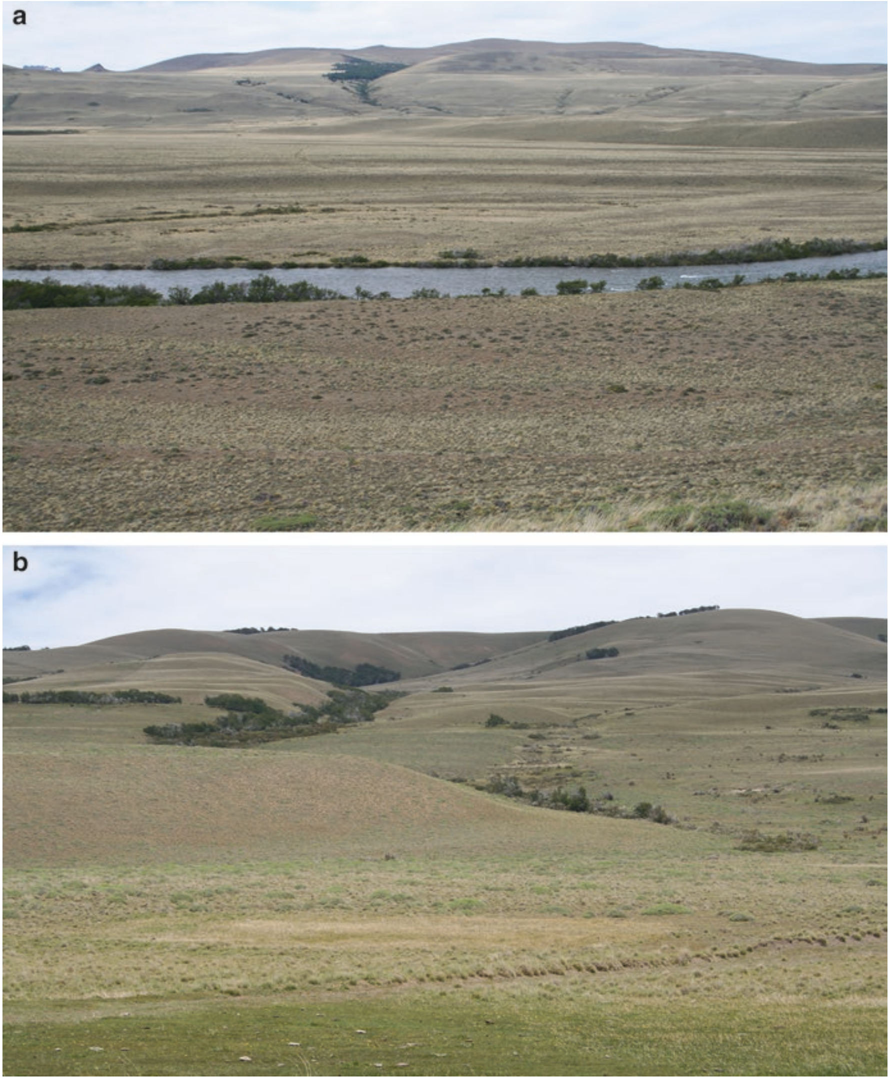

Fig. 5.7 Patagonian Province. Subandean Subprovince. *Festuca pallescens* steppes in alluvial terraces of Senguerr river in southwestern Chubut (**a**) and covering morainic hills in southwestern Chubut (**b**) (Photo: M. Bertiller)

Hordeum comosum, *Koeleria vurilochensis*, *Poa ligularis*, and *Rytidosperma virescens*) with sparse shrubs or patches of *Azorella prolifera* (Bertiller et al. 2006; Fig. 5.7). The Western Patagonian Subprovince consisting of grass-shrub steppes with a patchy structure occupies a narrow strip at the west of the area limiting with the Subandean Patagonian Subprovince. Plant patches include perennial grass species (*Pappostipa speciosa*, *P. humilis*, *Poa ligularis*, *Hordeum comosum*, and

Fig. 5.8 Patagonia Province. Western Subprovince. Shrub-grass steppes in Río Mayo, Chubut, Argentina (Photo: M. Bertiller)

Bromus setifolius) and shrub species dominated by *Azorella prolifera*, *Senecio filaginoides*, and *Adesmia volckmannii* (Soriano 1956; Golluscio et al. 1982) (Fig. 5.8). Shrub steppes and semideserts are the dominant physiognomy occupying the Central Subprovince located at the east of the Western Subprovince. Shrub steppes are mainly dominated by *Chuquiraga avellanedae* at the north with the accompanying species *Lycium ameghinoi*, *L. chilense*, *Mulguraea ligustrina*, and *Prosopis denudans* (Fig. 5.9a). At the south of this subprovince *Mulguraea tridens* is the dominant species with other less abundant species in the herbaceous layer (*Pappostipa ibarii*, *Jarava neaei*, *Pappostipa speciosa*, and *Festuca pyrogea*) (León et al. 1998). Semideserts are mainly dominated by the dwarf shrub *Nassauvia glomerulosa* along with the small shrubs *Chuquiraga aurea*, *C. morenonis*, *Petunia patagonica*, and *Azorella monantha* and the perennial grass *Poa spiciformis* (Fig. 5.9b). The Magellanic Subprovince occupies the southern portion of the Argentinian Patagonian Province and vegetation is represented by grass steppes dominated by *Festuca gracillima* and other perennial grasses and sedges (León et al. 1998; Peri et al. 2013). For more than a century, overgrazing has affected the structure and functioning of these Patagonian ecosystems (Soriano and Movia 1986; Ares et al. 1990; Bertiller et al. 1995; Oliva et al. 2016). Disturbance due to gas and oil extraction is locally severe in some areas (Bortolus and Schwindt 2006; Rueter and Bertolami 2010). Exotic plant invasions are common (Speziale and Ezcurra 2011; Speziale et al. 2013; Bravo-Monasterio et al. 2016; Franzese et al. 2017) and very serious in some areas as Tierra del Fuego (Cipriotti et al. 2010). The European hare (*Lepus europaeus*) has invaded most of this province (Jaksic 1998) and wild rabbits (*Oryctolagus cuniculus*) are invading part of this province in Tierra del Fuego and Neuquén (Bonino and Soriguer 2009).

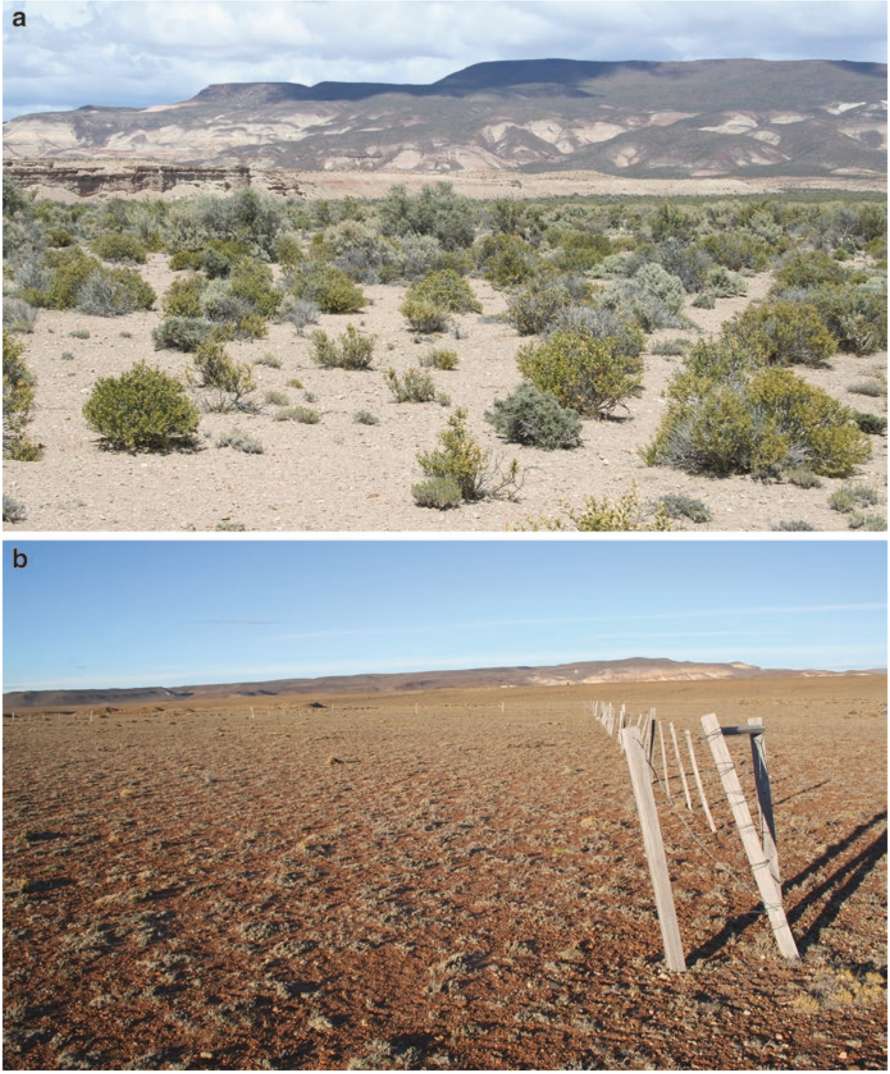

Fig. 5.9 Patagonia Province. Central Subprovince. *Chuquiraga avellanedae* steppe in Los Altares, Central Chubut (**a**). Semidesert dwarf steppe of *Nassauvia glomerulosa* in alluvial terraces of the Senguerr river in south-central Chubut (**b**) (Photos: M. Bertiller)

5.3 Final Words

Patagonia encompasses a vast territory with high climatic and landscape heterogeneity modulating a high diversity of plant formations from forests to deserts. These plant formations are characterized by a high internal plant heterogeneity providing a high diversity of niches for lizard species (e.g., Llancapán 2005). A common feature of Patagonian plant formations is that anthropic disturbance is widely spread across the territory. This along with predicted global warming and climate change constitutes an alert in relation to changes in these formations affecting not only the structure but also the functioning of vegetation with impacts on main ecosystem processes and on the conservation and sustainability of animal populations. In fact, direct and indirect (i.e., vegetation mediated) effects of disturbances on lizard communities are almost completely unknown in Patagonia (but see Bonenti 2005).

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Appendix

Adesmia volckmanni Phil.
Aextoxicon punctatum Ruiz & Pav.
*Anarthrophyllum rigidum (*Gillies ex Hook. & Arn.) Hieron.
Araucaria araucana (Molina) K. Koch
Astelia pumila (G. Forst.) Gaudich.
Austrocedrus chilensis (D.Don) Pic.Serm. & Bizzarri
Azorella monantha Clos.
Azorella prolifera (Cav.) G.M. Plunkett & A.N. Nicolas
Berberis empetrifolia Lam.
Bougainvillea spinosa (Cav.) Heimerl
Bromus setifolius J. Presl.
Chuquiraga aurea Skottsb.
Chuquiraga avellanedae Lorentz
Chuquiraga morenonis (Kuntze) C.Ezcurra
Chuquiraga oppositifolia D. Don
Chusquea quila Kunth
Colliguaja integerrima Gill. & Hook.
Condalia microphylla Cav.
Cryptocarya alba (Molina) Looser
Dasyphyllum diacanthoides (Less.) Cabrera
Discaria articulata (Phil.) Miers
Donatia fascicularis J.R. et G. Forst.
Drimys winteri J.R.Forst. & G.Forst.
Empetrum rubrum Vahl ex Willd.
Ephedra ochreata Miers.
Eucryphia cordifolia Cav.
Fabiana imbricata Ruiz & Pav.
Festuca gracillima Hook.f.

Festuca pallescens (St. Ives) Parodi
Festuca pyrogea Speg.
Fitzroya cupressoides (Molina) I.M.Johnst.
Geoffroea decorticans (Gill. ex Hook. & Arn.) Burkart
Gomortega keule (Molina) Baill
Griselinia ruscifolia (Clos.) Taub.
Gunnera magellanica Lam.
Hordeum comosum J. Presl.
Hydrangea serratifolia (Hook. & Arn.) F. Phil.
Hymenophyllum caudiculatum Mart.
Jarava neaei (Nees ex Steud.) Peñail.
Koeleria vurilochensis C.E. Calderón ex Nicora
Laretia acaulis (Phil.) Reiche
Larrea ameghinoi Speg.
Larrea cuneifolia Cav.
Larrea divaricata Cav.
Larrea nitida Cav.
Laurelia sempervirens (Ruiz & Pav.) Tul
Laureliopsis philippiana (Looser) R.Schodde
Lithraea caustica (Molina) Hook. et Arn.
Luma apiculata (DC.) Burret
Lycium ameghinoi Speg.
Lycium chilense Bertero
Maytenus disticha (Hook.f.) Urb.
Monttea aphylla (Miers) Benth. & Hook.
Mulguraea ligustrina (Lag.) O'Leary & P.Peralta
Mulguraea tridens O'Leary & P.Peralta
Nassauvia glomerulosa (Lag. ex Lindl.) D. Don
Nothofagus alpina (Poepp. & Endl.) Oerst.
Nothofagus antarctica (G.Forst.) Oerst.
Nothofagus betuloides (Mirb.) Oerst.
Nothofagus dombeyi (Mirb.) Oerst.
Nothofagus nitida (Phil.) Krasser
Nothofagus obliqua (Mirb.) Oerst.
Nothofagus pumilio (Poepp. & Endl.) Krasser
Oreobolus obtusangulus Gaudich.
Oxalis adenophylla Gillies ex Hook. & Arn.
Oxalis compacta Gillies ex Hook. & Arn.
Papostipa humilis (Cav.) Romasch
Pappostipa ibarii (Phil.)Romasch.
Pappostipa speciosa (Trin. & Rupr.) Romasch
Peumus boldus Molina
Persea lingue Miers ex Bertero Nees
Petunia patagonica Millán
Pilgerodendron uviferum (D. Don) Florin

Pinus radiata D. Don
Poa ligularis Nees. ex. Steud.
Poa spiciformis (Steud.) Hauman & Parodi
Podocarpus nubigena Lindl.
Podocarpus saligna D.Don.
Polypodium feuillei Bertero
Pozoa coriacea Lag.
Prosopidastrum striatum (Benth.)R.A. Palacios&Hoc.
Prosopis alpataco Phil.
Prosopis denudans Benth.
Prosopis flexuosa DC.
Quillaja saponaria Molina
Rytidosperma virescens (E. Devs.) Nicora
Saxegothaea conspicua Lindl.
Senecio algens Wedd.
Senecio filaginoides DC.
Sphagnum magellanicum Brid.
Stillingia patagonica (Speg.) Pax & K. Hoffm.
Tepualia stipularis (Hook. & Arn.) Griseb.
Vachellia caven (Molina) Seigler & Ebinger
Weinmannia trichosperma Cav.

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