



## On the Prepuna biogeographic province: A nomenclatural clarification

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The nomenclatural status of the Prepuna province *sensu* Cabrera (1951) and *sensu* Morrone (1999) is clarified. The Prepuna province *sensu* Cabrera (1951) is demoted to a district of the Monte province, **stat. nov.** The valid name of the Prepuna province *sensu* Morrone (1999) is Cuyan High Andean province Cabrera, 1971, **stat. nov.** Diagnoses of these areas are provided and their endemic taxa are listed.

**Key words:** Biogeographical classification, Cuyan High Andean province, Prepuna, South American transition zone

### Introduction

In some contributions on regionalization (Morrone 1999, 2001, 2014, 2015) there is a confusion concerning two different biogeographic areas of the South American transition zone. In these contributions, the Prepuna province was recognized, following the nomenclature of Cabrera (1951, 1971, 1976; Cabrera & Willink 1973) and treated as equivalent to the Southern Andean Steppe ecoregion of Dinerstein *et al.* (1995) and Olson *et al.* (2001). The Southern Andean Steppe constitutes a continuous area along the dry southern Andes of Catamarca, La Rioja, San Juan, Mendoza and Neuquén provinces in Argentina and limiting areas in central Chile, between 27° and 38° south latitude, which includes many of the highest mountains of South America and is characterized by several endemic taxa (Ezcurra 2001). The Southern Andean Steppe limits to the north with the Puna province, to the south with the Patagonian province, to the east with the Monte province and to the west with the Central Chilean subregion, and corresponds to part of the High Andean province *sensu* Cabrera (1971, 1976; Cabrera & Willink 1973). On the other hand, the Prepuna biogeographic province *sensu* Cabrera (e.g., 1971, 1976) is a different area that corresponds to a narrow strip bordering the south-eastern side of the Puna. In recent contributions it has been included as part of the northernmost area of the Monte province (e.g., Burkart *et al.* 1999, in Monte de Sierras y Bolsones; Abraham *et al.* 2009, in High Monte).

Our objective is to clarify this nomenclatural issue, distinguishing both areas and determining which are their valid names according to the International Code of Area Nomenclature (ICAN; Ebach *et al.*, 2008).

### Area taxonomy

#### Cuyan High Andean province Cabrera 1971, **stat. nov.**

Subandean province (in part) Fittkau 1969: 642.

Cuyan High Andean district Cabrera 1971: 31.

Southern Andean province (in part) Udvardy 1975: 42.

Argentinean-Atacaman province (in part) Rivas-Martínez & Navarro 1994: map.

Southern Andean Steppe ecoregion Dinerstein *et al.* 1995: 102; Olson *et al.* 2001: 935.

Prepuna province Morrone 1999: 12 (*non* Cabrera 1951), 2001: 112, 2006: 483, 2014: 89, 2015: 210, **syn. nov.**

**Diagnosis.** Southern Andes of Catamarca, La Rioja, San Juan, Mendoza and northern Neuquén provinces in Argentina and limiting areas in central Chile, between 27°–38° S and 68°–72° W, and from aprox. 4500–2200 m a.s.l. (Cabrera 1971; Ezcurra 2001). South of this area, fragments of this biogeographic province extend as small isolated islands on high elevations of the Patagonian Andes, and north of this area, on high mountains of the Puna (Cabrera 1976).

**Endemic taxa.** Ezcurra (2001) cited several plant and animal taxa as endemic to this province. Plants include

*Adesmia pinifolia* and *A. subterranea* (Fabaceae), *Chuquiraga echegarayi*, *C. ruscifolia*, *Chaetanthera splendens*, *Huarpea andina*, *Nassauvia cumingii* and *Senecio uspallatensis* (Asteraceae), *Azorella cryptantha* and *Laretia acaulis* (Apiaceae), *Stipa ruiz-lealii* (Poaceae), *Jaborosa laciniata* (Solanaceae), and *Oxychloe bisexualis* (Juncaceae) among many others. Animal taxa include *Geositta isabellina* (Furnariidae), *Sicalis auriventris* (Emberizidae) and *Euneomys mordax* (Cricetidae).

**Note.** Even though Cabrera (1971) originally only included in this area the Andes of Argentina east of the limit with Chile (i.e., Cuyo), this province also comprises the limiting high Andes of central Chile. In the maps by Morrone (1999, 2006, 2014, 2015) and the shapefiles by Löwenberg-Neto (2014, 2015) the name "Prepuna province" should be changed to "Cuyan High Andean province".

### Monte province Holmberg 1898

#### Prepuna district Cabrera 1951, stat. nov.

Prepuna province Cabrera 1951: 40, 1953: 107, 1958: 200; Morello 1958: 117; Cabrera 1971: 21; Cabrera & Willink 1973: 76; Cabrera, 1976: 34; Aagesen *et al.*, 2009: 295, 2012: 219.

Monte de Sierras y Bolsones ecoregion (in part) Burkart 1999: 13.

Cardonales de Laderas subregion Burkart 1999: 14.

High Monte area Abraham *et al.* 2009 (in part): 145.

**Diagnosis.** Southern Bolivia and northwestern Argentina, from Jujuy to La Rioja, aprox. from 3500 to 1000 m a.s.l. (Cabrera 1951, 1971, 1976; López 2001). It corresponds to the northernmost district of the Monte biogeographic province.

**Endemic taxa.** The taxa previously recognized for the Prepuna province (Cabrera 1951, 1971, 1976; Morrone 2001, 2014) correspond to this district.

**Notes.** Morello (1958) and Cabrera (1976) expressed that the Prepuna was very similar to the Monte and could eventually be considered a district within it. Cabrera (1976), however, later characterized the Prepuna province as different to the Monte by several endemic species plus the abundance of saxicolous Bromeliaceae and columnar cacti of the genus *Trichocereus*. In fact, Cabrera's placement of the Prepuna in relation to other biogeographic provinces (Cabrera 1976; Cabrera & Willink 1973) is not consistent (Ribichich, 2002).

Future studies should analyse the fuzzy boundaries between the east slope of the Puna province and the Prepuna district (see Aagesen *et al.* 2009; Ferro & Bárquez 2014). Similar shrubland communities have been characterized between the west slope of the Puna province and the Atacama province (Rundel *et al.* 2009).

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