**Supporting information lists S1-2**

**The smallest area shaped a big problem: a revision of Ventania sky island placement in the biogeography of South America.**

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**SUPPORTING INFORMATION LIST S1**

Endemic taxa of Ventania Mountain System.

The following taxa can only be found in Ventania, defining the study area as an area of endemism:

**ANIMALIA (57). Phylum MOLLUSCA (5)**. GASTROPODA. Pulmonata: *Austroborus dorbignyi; Plagiodontes rocae; Plagiodontes patagonicus; Ventania*, endemic monotipic genus with the species *V. avellanedae; Zilchogyra franzi.* **Phylum NEMATOMORPHA (5)**. Gordioidea: *Beatogordius variabilis, Neochordodes australis, Chordodes lotus, Neochordodes serranensis, Neochordodes torrenticola.* **Phylum ARTHROPODA (42).** ARACHNIDA (12). Araneae Araneomorphae: *Puan*, endemic genus with two species, *P. chechehet* and *P. nair*; *Camillina ventana; Camillina galianoe.* Araneae Mygalomorphae: *Actinopus* *casuhati; Calathotarsus simoni.* Scorpiones: *Bothriurus voyati.* Opiliones: *Neopucroliella mesembrina.* Solifugae: *Pseudocleobis orientalis; Gaucha casuhati.* Pseudoscorpiones: *Progarypus* sp. 1 \*. Acari Prostigmata, Aturidae: *Neoaturus tornquistensis*. CRUSTACEA (2). Arguloida: *Argulus* *ventanensis.* Amphipoda: *Yacana*, endemic monotipic genus with the species *Y. ventania*. MYRIAPODA (1). Scolopendromorpha: *Cryptops* sp. 1 \*. HEXAPODA (27). Collembola: *Cryptopigus yosii; Haploisotoma*, endemic monotipic genus with the species *H. ventanensis; Katianna serrae; Katianna steparia; Prorastriopes izarrae; Pseudosinella rapoporti; Seira ferruginea; Sminthurinus castagninoi; Sminthurinus nuñezi; Sminthurinus rupium; Sminthurinus ventanae; Tullbergia humilis; Tullbergia inconspicua; Tullbergia ventanensis.* Insecta. Diptera: *Bezzia* *ventanensis; Brachypogon* (*Brachypogon*) *bonaerensis; Podonomus quinquesetosus; Podonomus tehuelche; Onconeura analiae; Pseudosmittia sætheri; Lipurometriocnemus glabripalpus.* Heteroptera: *Oenopiella ventanensis.* Coleoptera: *Gyrinus monrosi; Paranillopsis*, endemic genus with two species, *P. piguensis* and *P. pampaensis*. Hymenoptera: *Hypoponera fenestralis*, *Tachypompilus atratus.* **Phylum CHORDATA (5)**. Anura: *Melanophryniscus diabolicus*. Mammalia: *Phyllotis bonariensis.* Squamata: *Pristidactylus casuhatiensis; Lygophis* *elegantissimus*. Aves: *Sicalis* *auriventris* “holmbergi morph” \*\*. **PLANTAE (25). Division Charophyta (1).** Desmidiaceae: *Cosmarium simplicius* var. *irenemariei*. **Division Bryophyta (2).** Pottiaceae:*Barbula ventanica.* Fissidentaceae: *Fissidens ventanae.* **Phylum TRACHEOPHYTA (22).** Poaceae: *Festuca ventanicola; Festuca pampeana; Nassella ventanicola; Piptochaetium brachyspermum; Koeleria* *ventanicola*. Iridaceae: *Sisyrinchium* *pachyrhizum* subsp. *procerum.* Brassicaceae: *Mostacillastrum* *ventanense*. Cariophyllaceae: *Cerastium* *mollissimum* var. *lorentzii.* Polygalcaeae: *Polygala ventanensis.* Cactaceae: *Gymnocalycium reductum* var*. reductum; Opuntia ventanensis* \*\*\*. Fabaceae: *Adesmia pampeana; Adesmia pseudogrisea.* Euphorbiaceae: *Euphorbia* *caespitosa* var. *ventanicola*. Plantaginaceae: *Plantago* *ventanensis.* Asteraceae: *Stevia satureiifolia* var*. ventanensis; Baccharis rufescens* var*. ventanicola; Grindelia ventanensis; Hieracium burkartii; Hieracium chacoense; Senecio* *leucopeplus; Senecio* *ventanensis.* **FUNGI (2). Division BASIDIOMYCOTA (2).** Ustilaginomycetes: *Tranzscheliella* *ventanensis*. Coelomycetes: *Bartalinia* *mellea*.

\* *Progarypus* sp 1 and *Cryptops* sp. 1 are new species found in Cerro Querencia that are still under description (A. Porta y E.L. Guerrero).

\*\* We do not consider that *Sicalis* *holmbergi* (Aves) is a valid species, because it hasn’t been formally described and it is possible conspecific with *Sicalis* *auriventris* from whom there is no evident morphological difference; however, we consider that the song and behavioural features mentioned by López Lanús (2017), may pose this population as a different “morph” when compared with the core area (Andean) populations of *S*. *auriventris*.

\*\*\* *Opuntia* *ventanensis* is practically indistinguishable and possibly conspecific with *O. fragilis* from the southern United States (Majure et al., 2020). However, we are cautious about this conclusion, because Majure et al. (2020) studied a sterile specimen from Córdoba province that they identified as *O. ventanensis* without comparing it with the type specimens. Future studies are needed to reveal if 1- *O. ventanensis* is endemic to Ventania and *O. fragilis* lives in southern United States and Córdoba, or if 2- *O. ventanensis* is endemic to Ventania and Córdoba and *O. fragilis* lives in southern United States, or if 3- all the populations (Ventania and Córdoba) belong to *O. fragilis*. So, up to now, nothing can be concluded about the validity of this cacti and its endemic status in Ventania. To be cautious, we still maintain this name as endemic to Ventania.

The overlap in the geographical distribution areas of the enlisted taxa probably encompass all the Ventania surface, but the information about some sectors is scarce or null. Many of the enlisted endemics may inhabit the east historically neglected zone of Ventania. We confirmed that in the de las Tunas-Pillahuincó Chain (Ceferino, Curamalal Grande, Ameghino, del Caraguay, Querencia, Gurubú and Bonete peaks), the following endemics are present: *Plagiodontes patagonicus, Ventania avellanedae, Calathotarsus simoni, Bothriurus voyati, Pseudocleobis orientalis, Gaucha cashuati, Homonota williamsi, Ligophis elegantissimus, Melanophryniscus diabolicus*, *Opuntia ventanensis, Adesmia pampeana, Euphorbia caespitosa* var. *ventanicola, Grindelia ventanensis,* and *Senecio ventanensis*. These species are apparently widespread across all the ranges that compose the Ventania system, or most parts of it, with an overlap of almost their entire distribution, for which they are adequate to diagnose the whole area. Three species, *Plagiodontes patagonicus*, *Neopucroliella mesembrina*, and *Melanophryniscus diabolicus*, extend a few kilometres further south. They can be found from Ventania ranges to the Bahía Blanca Bay in the tosca rock (caliche) outcrops along creeks associated with dry “espinal vegetation”.

**SUPPORTING INFORMATION LIST S2**

Endemic taxa of Tandilia System.

**ANIMALIA. Phylum Arthropoda**. Araneae. Actinopodidae: *Actinopus* *balcarce*. Mecycobothriidae: *Calathotarsus* *fangioi*. Anyphaenidae: *Monapia* *tandil*. Dyctinidae: *Tandil* (endemic), *T. nostalgicus*. Thomisidae: *Runcinoides* *lacticeps*. Salticidae: *Clynotoides* (endemic), *C. dorae*; *Metaphidippus* *pluripunctatus*. Coleoptera. Chrisomelidae: *Xenochalepus* *tandilensis*. Scarabeidae: *Myloxenoides* *tandilensis*. Scarabeidae: *Athlia* *bollei*. Lepidoptera: Psychidae: "*Platoeceticus*" *tandilensis*. Hymenoptera: Mutilliidae: *Sphinctopsis* *matrera*. Chordata. Squamata. Liolaemidae: *Liolaemus* *aesconditus*, *Liolaemus* *tandilensis*. Anura. Bufonidae: *Melanophryniscus* *nigricans*. **PLANTAE. Phylum Tracheophyta**. Asteraceae: *Senecio* *bravensis*, *Senecio* *tandilensis*, *Hieracium* *tandilense*. Poaceae: *Setaria* *vaginata* var. *tandilense*. Cannaceae: *Canna* *tandilensis*. Bromeliaceae: *Dickia* *remotiflora* var. *tandilensis*, *Tillandsia* *bergerii*. Solanaceae: *Solanum* *deterrimum*. Cactaceae: *Gymnocalycium* *schroederianum* subsp. *bayense*.