

The Musical Veins of the Zongo Valley and Sound Voice of its Panpipe Bamboo: A Photo Story

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My [ecomusicological research](#) on the Musical Bamboos of the Bolivian Andes includes topics and approaches related to (sub)disciplines and fields of study such as ethnomusicology and organology, plant ecology and phenology, geobotany and phytogeography, sustainability studies and natural resource management, ecological economics and political ecology, as well as the anthropology of music and the environment. From an inter- and transdisciplinary perspective, I explore in detail the use of tropical native woody bamboos in highland flute making in the Bolivian Andes. In relation to ecomusicological studies on natural resources, sustainability, and musical instruments (Allen 2023), I have termed them “musical bamboos” to highlight their musical value in the context of highland flute making on the Aymara Altiplano. These native Andean woody bamboos, which grow in their natural habitats in the Yungas cloud forests and Andean-Amazonian foothills on the Eastern slopes of the Tropical Andes, are used to make a variety of Andean flutes, such as panpipes as well as vertical and transverse flutes.

Panpipe bamboos are locally known by their Aymara name called *chhalla*. Etymologically, the word *chhalla* refers to a dried cane of maize (Bertonio 1993 [1612]). Specifying that contemporary Aymara flute makers on the Andean Altiplano are talking about woody bamboos for making panpipes, the Aymara word for panpipe (*siku*) is often added in front of it. The combination *sikuchhalla* would then mean something like dried canes of panpipes. These *chhalla* panpipe bamboos are available in an impressive diversity, with different *chhalla* variants (botanically described and undescribed species in the *Rhipidocladum* and *Merostachys* genera) used for various rural and urban panpipes and in different flute music and

performance contexts (Hachmeyer 2023). Aymara highland flute makers have created their own musical bamboo typology and classification system that is reminiscent of bamboo-based musical typologies such as that of the Melanesian ‘Are’are people documented by Swiss ethnomusicologist Hugo Zemp (1978). Within the local Aymara sound ecology, particular *chhalla* panpipe bamboo variants have specific morphological and sonic characteristics and are named after the recognized regions where they are sourced.

One of these recognized sourcing regions is the subtropical Valle de Zongo close to the city of La Paz, which provides a unique panpipe bamboo known as *chhalla de Zongo*. Because of its thin walls it is also commonly referred to as *cáscara de huevo* in Spanish or egg-shell, as it is very fragile. Aymara musicians say about it that it has a rich, resonant “sound voice,” or rather literally “neck” (*salla kunkaniwa*). Bamboo selection in Andean aerophones is extremely diverse, varied among flute musicians (*phusiris*) or makers (*luriris*), and depends on performance context, diachronic perspective, sonic properties, and aesthetic preferences (Hachmeyer, 2023). These factors make it difficult to find a common denominator. The *chhalla de Zongo* is different in this regard as panpipers of different musical contexts and backgrounds appreciate it for sonorous reasons. Because of its “sound voice” the *chhalla de Zongo*, which is also used in different rural and urban collective panpipe style contexts, is nowadays especially sought-after by professional panpipe musicians playing different genres in the Andean popular



Challa de Zongo



Valle de Zongo/The Zongo Valley. All photos courtesy of Sebastian Hachmeyer.

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and folkloric music. These more professional panpipes are often tuned in standard equal temperament in a chromatic scale so that professional panpipers can access the full range of notes in the Western tonal system.



Cloud Forest, Chirimoyani Village.

While conducting fieldwork for my PhD thesis (2016–2019), I visited the Valle de Zongo for the first time in 2018. The beauty of its steep slopes with intact cloud forest vegetation was simply overwhelming. Six years ago, flute makers on the Andean Altiplano experienced a scarcity of this specific chhalla bamboo of the famous Zongo valley. On the one hand, this must be related to overexploitation and species extinction at population level in this recognized sourcing region. Drawing on Aaron Allen's (2012) arguments in the context of violin bows and related overexploitation of brazilwood, the musical appreciation of this highly sought-after bamboo has caused much environmental pressure on existing bamboo populations in that specific subtropical valley close to the city of La Paz. Panpipe bamboo collectors (*chhalleros*) told me that chhalla populations grew closer to villages and the main road in former times, and that they today must hike for several hours crossing hundreds of meters of elevation to find healthy chhalla populations.

On the other hand, this scarcity also has ecological explanations as Andean woody bamboos like chhallas follow certain biological life cycles that determine availability of materials. These Andean woody bamboos are technically perennial plants which means that they have flowering cycles "though the years." They furthermore exhibit monocarpism in which plants flower only once during lifetime and die afterwards. Additionally, woody bamboos often exhibit gregarious flowering in which all individuals of the same cohort synchronize flowering and seeding events and die collectively. When I visited the Zongo valley in July 2018, the local chhallero Savino Mallea from Zongo Pueblo showed me juvenile plants in

the process of lignification (hardening) that regrew after a mass flowing event and bamboo death earlier that year. The collective death of woody bamboos can cause huge effects on ecosystems, but also very negative consequences for local economies depending on bamboos. In the case of bamboo flute making in the Bolivian Andes this means recurring periods of material scarcity that flute makers tried to adapt to by hoarding mature bamboos and diversifying the use of different species with time-staggered life cycles (Hachmeyer 2023).

After six years, I visited the Valle de Zongo again in May 2024. I met my chhallero friend Alejandro Colque in Chirimoyani, who showed me how the juvenile plants of 2018 grew into huge clumps with culms of different diameters and heights of up to ten meters. The time of gathering has now come, the dry season, when rains diminish, and the chhalleros are working again in the cloud forests and bamboo thickets of the Zongo valley to gather chhalla culms, dry them, and sell the internodes to flute makers on the highlands.

The botanist Lorenzo Raimundo Parodi (1944) first described the plant as *Arthrostylidium harmonicum*. Nowadays, the plant is called *Rhipidocladum harmonicum*, after bamboo specialist Floyd Alonso McClure reallocated all woody bamboos having fan-like patterns formed by members of a mature midculm branch complement in the genus of *Rhipidocladum* (McClure 1973). The genus name is derived from the Greek words, *ῥιπίς* (*rhapis*) meaning fan, and *κλάδος* (*klados*) meaning branch, while the species name *harmonicum* alludes to the musical use of its internodes in Andean panpipe making.



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If done sustainably, the chhalleros can from now on constantly gather panpipe bamboo culms and internodes in the Zongo valley until the next bamboo death in approximately two years, as the flowering cycle of this specific chhalla species is about eight years. The chhallero Alejandro further explained to me how to recognize mature culms and differentiate them from immature ones, mainly by color (immature=light green, mature=dark green) and by testing their lignification through knocking on the bamboo walls. The chhalla bamboos grow in clumps that have unequal age structures of individual culms. Mature and old culms are usually located in the center of the clump while immature and still lignifying culms are propagated from the rhizome and grow towards the periphery. At a specific gathering event experienced flute makers like Don Alejandro remove the old culms and only collect the mature ones, while leaving the immature and still lignifying culms in the clump for collection in the future.



Gathering Bamboos

With this sustainable gathering method clumps can be gathered every three months, which ensures the availability of the chhalla de Zongo in the future. If clumps are clear-cut, bamboo plants cannot reproduce, while flute makers receive immature internodes which are unapt for flute making. Rather than causing environmental pressures, the musical appreciation of the chhalla de Zongo should engender sustainable management initiatives in the future. In this specific context, we must bring together the ideas of both music and conservation ecology, to preserve the natural ecosystem in which musical bamboos grow as well as the music played with musical bamboo-made aerophones. The musical bamboos are distributed like musical veins in the cloud forest environment, sustaining musical life in the bamboo flute music ecosystem on the highlands by providing natural materials for making unique musical instruments.

For further information about Sebastian's current Applied Ecomusicology Project "From Native Bamboos to Indigenous Flutes," please see the [homepage](#) of the Center for World Music of the University of Hildesheim.

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Drying of Internodes