Moving beyond Academic Boundaries: Applied and Transdisciplinary Research in the Context of Natural Resource Use and Sustainability in Musical Instrument Making

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Introduction

More and more animal and plant species that provide materials for musical instruments are threatened. Unsustainable harvest practices contribute to this endangered status while problems in sourcing materials and increasing resource scarcities jeopardize a sustainable supply of materials for many musical instrument-making cultures worldwide. Addressing complex musicultural-ecological and sustainability challenges in this context calls for problem-based and solution-oriented approaches beyond academic boundaries and classical fields of research. Against this background, we focus on the importance of including applied and transdisciplinary processes in our interdisciplinary research on ecological and environmental aspects of musical sustainability, building on a rich body of interdisciplinary literature on natural resources and musical instrument making more broadly linked to the field of study of Ecomusicology.

The exploration of natural resource use and materiality in musical instrument making has evolved as a significant focus in ecomusicological research over the past two decades (Perlman, 2012; Allen, 2023; Hachmeyer & Allen, 2024). Our international online conference, held in October 2024 and titled “Music-Making Materials: Natural Resource Use and Sustainability in Musical Instrument Making”, aimed to provide a comprehensive overview of this research. It sought to identify existing and future challenges, as well as potential sustainable solution approaches, at various spatial scales (local, regional, national, global, etc.) and in a comparative manner. As conveners, we united a diverse group of researchers (including musicologists, historians, ecologists, geographers, botanists, and resource managers) and practitioners (such as musicians, musical instrument makers, and museologists) from different musical cultures and places around the world. Our goal was to synthesise, systematise, and advance research efforts within a more applied and transdisciplinary framework, creating opportunities for

collaborative analysis of sustainability issues and fostering knowledge exchanges that support mutual learning processes.

In this chapter, we build on this idea of moving beyond academic boundaries in order to discuss applied and transdisciplinary approaches and processes within our own research contexts. We present two case studies that address diverse topics in the realm of natural resource use in musical instrument making by including applied and transdisciplinary aspects into methodologically and theoretically distinct research approaches. The first case study is about the musical bamboos (*Rhipidocladum spp.*, *Aulonemia spp.*) that are used to make a variety of highland flutes in the Bolivian Andes. The second case study is about the pau-brasil tree (*Paubrasilia echinata*), whose wood is used for making string instrument bows in the context of classical music. Both studies combine conceptual and methodological approaches of applied ecomusicology, ethnomusicology, geography, and ecology.

Addressing the sustainability challenges in our case studies both theoretically and practically allowed us to open up spaces for transdisciplinary learning in which we share findings with the scientific community as well as with relevant practitioners through academic publications in combination with specific science communication tools, such as a bilingual StoryMap about the musical bamboos and an interactive Scrollytelling of the bowstory. With these tools we bridge science and practice in order to communicate and return collaborative research findings to involved musical communities. We conclude that transdisciplinary and applied researchers are sometimes confronted with a lack of recognition of research findings, posing high challenges of placing these in highly recognised but often disciplinary-driven publication platforms. We point out the importance of science communication under the consideration that sharing research results to non-scientist is especially important and relevant in applied and transdisciplinary research processes so as to foster mutual learning.