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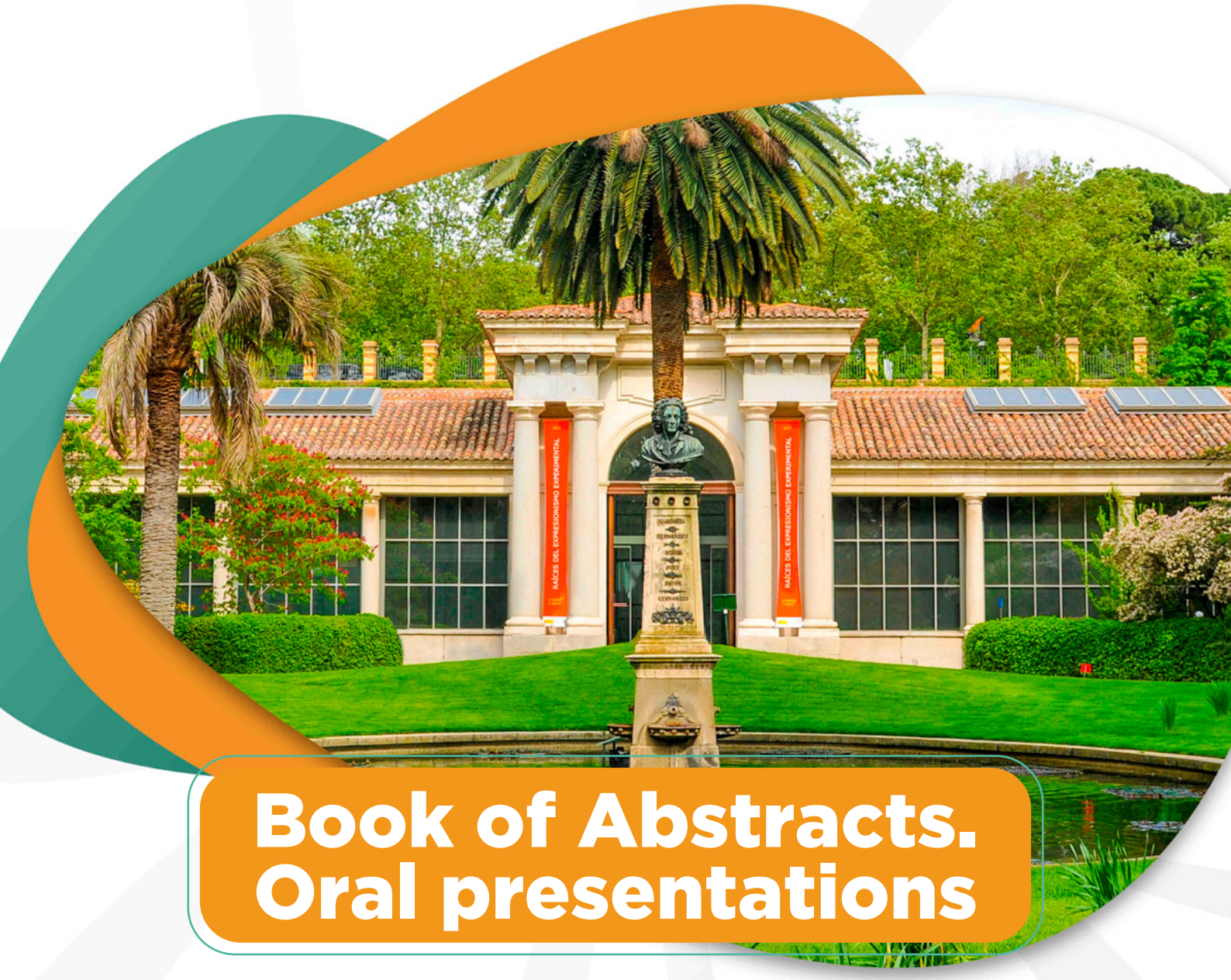

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biological threats. Fostering greater participation of ILPs in research would make science more efficient and conservation more sustainable while also slowing down the erosion of traditional knowledge and skills of ILPs, but formidable obstacles to such participation remain.

S.63.2 Conservation gap analysis of Mesoamerican oaks: establishing priorities for conservation

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Mesoamerica is a global center for oak biodiversity (genus *Quercus*), with an estimated 164 species in Mexico alone. Despite this incredible diversity, for many species, little is known regarding population size, trends, occurrence, or threats. There is an urgent need to coordinate and prioritize conservation action for both *in situ* and *ex situ* populations. We conducted a conservation gap analysis of 59 threatened and Data Deficient species of Mesoamerican oaks to estimate the geographic and ecological representation of species in *ex situ* collections. For species without population-level genetic data, this is a useful proxy to estimate the genetic representation of *ex situ* collections. Between 2017 and 2022 we distributed surveys to *ex situ* institutions with a request for their *Quercus* accessions data. There were 197 institutions that reported living collections of at least one Mesoamerican oak, a majority of which are in the United States (49%) and Europe (32%), with only 5% of the species having at least one collection in Mesoamerica. Twenty-two of our target species are not held in any *ex situ* collections, anywhere in the world. We found that only three of the 59 target species have *ex situ* collections that represent more than 50% of the species' geographic range, and only 19 species have an ecological coverage greater than 50%. Furthermore, approximately one fourth (16/59) of the target species have less than 10% of their native range within protected areas. These results highlight the urgent need for expanding survey and exploration work, increasing representation of oak species in botanic gardens and arboreta, particularly in Mexico and Central America, and identifying priority regions to focus *in situ* conservation efforts, as well as priority activities for the members of the Global Conservation Consortium for Oak (GCCO).

S.63.3 Characterizing and explaining diversification in Haitian Coffee agroforestry systems

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Diversification of cropping systems is a strategy to increase their social and ecological resilience and delivery of ecosystem services. Such practices are prevalent in traditional agroforestry systems, such as those where coffee (*Coffea arabica*) is grown. Indeed, though they face several challenges, Haitian coffee agroforestry systems are important contributors to rural biodiversity and household livelihoods. However, little scientific attention has been paid to these systems. We studied diverse farms in historically important coffee growing regions of northern and southern Haiti and characterized the diversity of several components of their agroforestry systems: coffee plants, shade trees, and associate crops. We tested the relationships between these different levels of diversity and identified key ecosystem services delivered by them, including provision of diversified

farm products and carbon storage. In the case of Arabica coffee specifically (Millet et al. 2023), using targeted genotyping, we found significant genetic diversity and complex varietal mixtures. We show that some coffee farms are repositories of historical, widely-abandoned varieties while others are generators of new diversity through genetic mixing despite Arabica's tendency towards autogamy. In the latter, several varieties are often grown together, often in an uncontrolled manner, and are allowed to crossbreed with recruitment from the seed bank common, explaining the frequent admixture detected. Comparing these results with local, vernacular identifications, we found that the diversity in these systems is often under-estimated. These studies are, to our knowledge, the first to genetically characterize Haitian *C. arabica* and one of very few that have looked at Haitian agroforestry system crop and tree diversity.

References: Millet et al. 2023 Haitian Coffee agroforestry systems harbor considerable, dynamic and under-reported variety mixtures and genetic diversity. PlosOne, in revision.

S.63.4 Understanding patterns of biogeography and threat of tree species diversity across the Latin American biomes

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Tropical America has greater biodiversity than any other region of the world, but its biomes are under severe threat from climate and severe land use changes. Over recent years, plot inventory networks have successfully generated syntheses on biodiversity, ecology and ecosystem function. SynTreeSys, a new integrative initiative supported by CESAB (Centre for the Synthesis and Analysis of Biodiversity in France) is gathering knowledge of tree biodiversity across all biomes and gradients of rainfall and climate in Latin America, in order to dissect the patterns of tree diversity, abundance and threats. These inventory plot data offer much to assess species conservation status. Such conservation assessments can be made using herbarium specimen records, but these records have sampling biases and, critically, give no information about species population size and trends. The lack of such basic information prevents us from defining where conservation actions could be strategically implemented to best preserve tree diversity in the region, and to generate future scenarios based on known macroeconomic, climatic and land-use drivers. Here, we present examples from different biomes and regions that examine species' geographic ranges (IUCN criterion