



Orchid Conservation: Agronomic and Environmental Interventions in Post-Fire Recovery at the National Botanical Garden of Chile

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The preservation of orchids in ecosystems affected by wildfires is essential for maintaining local biodiversity and preventing extinctions. In this context, the extension project "*Intervenciones agronómicas y medioambientales en el Jardín Botánico Nacional como apoyo a la recuperación post incendios forestales*" aimed to support the recovery of orchid populations at the National Botanical Garden of Chile. The project's methodology included bidirectional activities between professors and students from the Agronomy course at Universidad Viña del Mar and professionals from the National Botanical Garden. The developed activities included mapping orchids in Sector C of the Garden, creating protocols for micropropagation of native flowers with the establishment of a plant tissue culture laboratory, creating publications for social media, and conducting training sessions on germplasm conservation. Orchid mapping was carried out between October and December 2024 using GPS. The germplasm conservation training was evaluated using an impact measurement tool, considering the relevance of the activity, the effectiveness of the training process, and the updating of the evaluation program. The other activities were documented through the delivery of created materials. In Sector C, the endemic orchids *Chloraea bletioides*, *Chloraea chrysantha*, *Chloraea cristata*, *Chloraea gavilu*, *Chloraea multiflora*, and *Gavilea longibracteata* were identified, with *Chloraea cristata* being classified as vulnerable. The mapping revealed the predominance of orchids on the southern-facing slope, where they coexist with geophytes and shrubs like *Puya sp.* The training involved 18 Agronomy students from Universidad Viña del Mar and 13 staff members from the National Botanical Garden. Among the students, 92.9% positively evaluated the initiative's contribution, 96.8% approved its quality, 96.1% highlighted its relevance, and the overall satisfaction rate was 97%, with an average score of 6.8 out of 7. For the staff members, 76.4% positively assessed the impact of the initiative, 83.4% approved its quality, 93.8% recognized its relevance, and the overall satisfaction reached 92%. The identification of endemic species and the classification of *Chloraea cristata* as vulnerable highlight the urgent need for conservation actions. The mapping activities integrated students and local professionals, strengthening the link between the university and the community and promoting a collaborative project. The development of protocols for germplasm conservation shows great potential for the long-term preservation of these species. In conclusion, the project significantly contributed to higher education by strengthening the bond between the university and the local community. It is expected that the project will continue to contribute to the conservation of these endemic orchids in the future.

Keywords: endemic orchids; community engagement; higher education.

Acknowledgments

The authors thank the Dirección General de Vinculación con el Medio y Relaciones Institucionales UVM (Universidad Viña del Mar) and the National Botanical Garden of Chile for their essential collaboration in the development of activities during the project.