

Development of the National Herbarium of Rwanda

“Documenting plant diversity in mountain rainforests and the Albertine Rift region”



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ABSTRACT

The National Herbarium of Rwanda (NHR) was created in 1953 and since 2019 it is managed by the Center of Excellence in Biodiversity and Natural Resource Management (CoEB) at University of Rwanda in Huye. NHR holds more than 20,000 unique, historical botanical specimens, many collected from mountain rainforest regions. The CoEB is digitizing the collection and upgrading the collections storage capacity so it continues to serve as a scientific research resource for the conservation of plant biodiversity in the region.



INTRODUCTION

The National Herbarium is a treasure of plant and fungi diversity over time since it was created in 1953. Now with more than 20,000 specimens, it serves as an important resource for teaching and research. With a grant from SEP2D, the CoEB was able to upgrade and digitize the NHR, which is officially registered in Index Herbariorum, the international directory of global herbaria.



Figure 1: NHR staff in the herbarium

MATERIAL AND METHODS

- 1) Since 2020, the staff initiated databasing and digital photography to provide public access to the specimen data.
- 2) Update specimen nomenclature for plant families following the Angiosperm Phylogeny Group IV classification. (Chase et al., 2018).
- 3) Database all specimen labels and preformed data cleaning.
- 4) Digitize specimens.
- 5) Publish data to public and scientific community through open source software.
- 6) Initiate new specimen field collecting through summer school training and funded grants.

Workflow - Making a Plant Specimen



RESULTS

The herbarium has been renovated and modernized to secure the preservation of the specimens. The collection currently contains more than 20,000 specimens from 204 families, 922 genera representing 2,044 plant species across all provinces in Rwanda (Figure 4).

Recent Rwandan collectors include Joseph Mvukiyumwami, Elias Bizuru, Raymond Umazekabiri, Aime Sandrine Uwase, and Pascal Sibomana. Foreign contributors include G. Troupin, G. Bouxin, M. Radoux, G. Michel, B. Runyinya, P. Auquier, P. van der Veken, J. Raynal, J. Lambinon, A.R. Christiaensen, and P. Bamps.



Figure 3 :NHR staff during specimen identification



Figure 2: NHR staff on field trip in Nyungwe National park

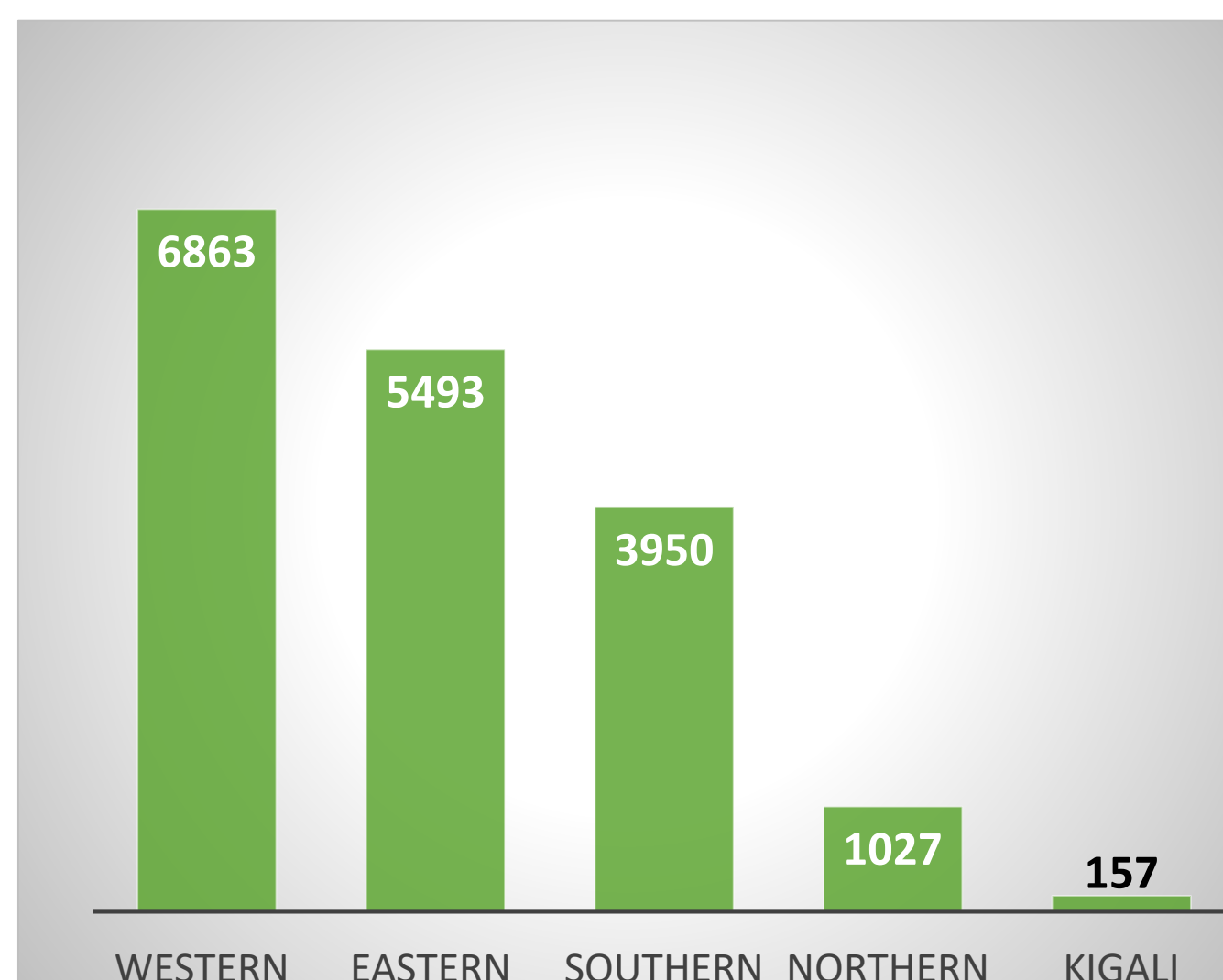


Figure 4: Specimen Distribution by Province in Rwanda.

DISCUSSION

Future research is now focusing on specific species checklists of our 4 National Parks as well as a species gap analysis, so we may more strategically collect under-represented plant species in Rwanda. Additional efforts are underway to train more students in museum collection management and specimen collecting through short-term internships and grant funded projects.

Lessons learned from the herbarium redevelopment are now being applied to other taxonomic groups to create new specimen-based collections of mosses, lichen, fungi, fishes, insect, reptiles, small mammals, and invertebrates at the University of Rwanda.

CONCLUSION

The NHR publicly provides both historic and new published data that can be used to conserve biodiversity, document effects of climate change on plant diversity, and support species conservation throughout Rwanda and the Albertine Rift region. New specimen data and discoveries will also open up new avenues and directions for future collaborative research efforts and studies.

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References

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