

Prioritization of useful medicinal plants for conservation in Pre-Rif, Morocco

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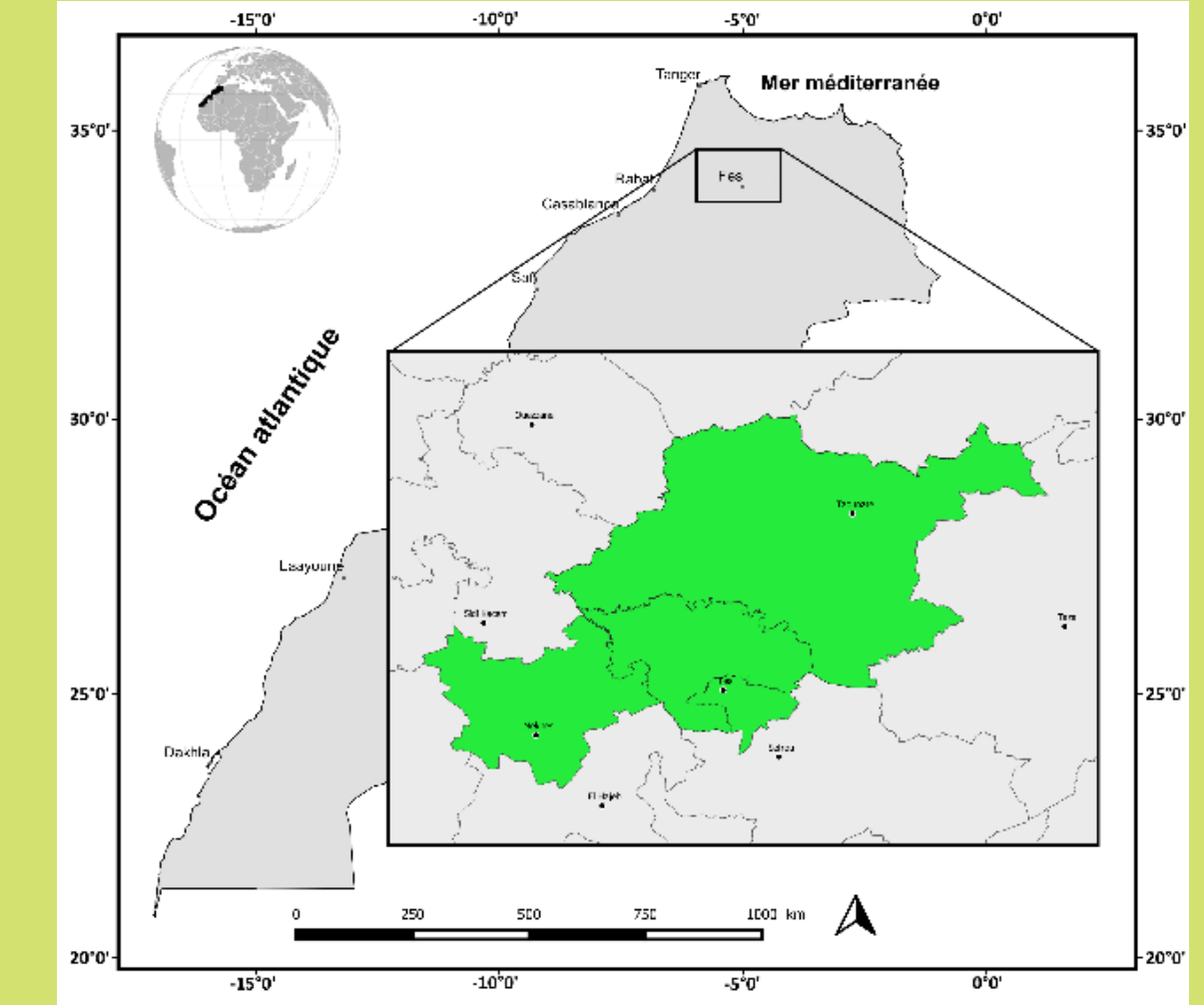
Objectives

- ✓ Definition of prioritization criteria in the Moroccan context.
- ✓ Threat assessment to the diversity of medicinal plants (ecological and human threats).
- ✓ Choice of ethnobotanical and ecological criteria.
- ✓ Application to a list of medicinal plants.

Study area

Pre-Rif

- ❖ Surface area of 9403 km²
- ❖ 86 communes (14 urban and 72 rural)
- ❖ Located in the middle of Morocco; a strategic crossroads for various socio-economic activities
- ❖ Different relief



Materials and Methods

2020-2021 : Ethnobotanical surveys to collect data on medicinal plant in the study area

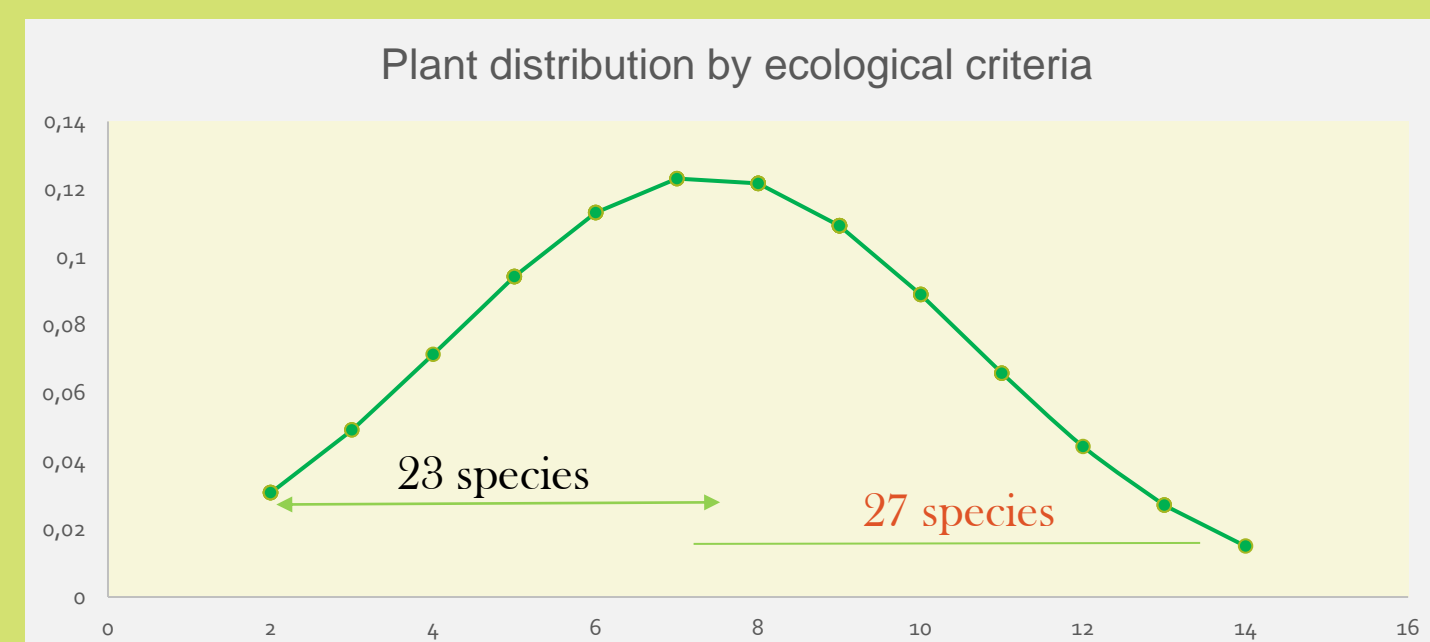
Records of 151 species belonging to 131 genera and 64 families

Selection of the most commonly used plants n=50 species

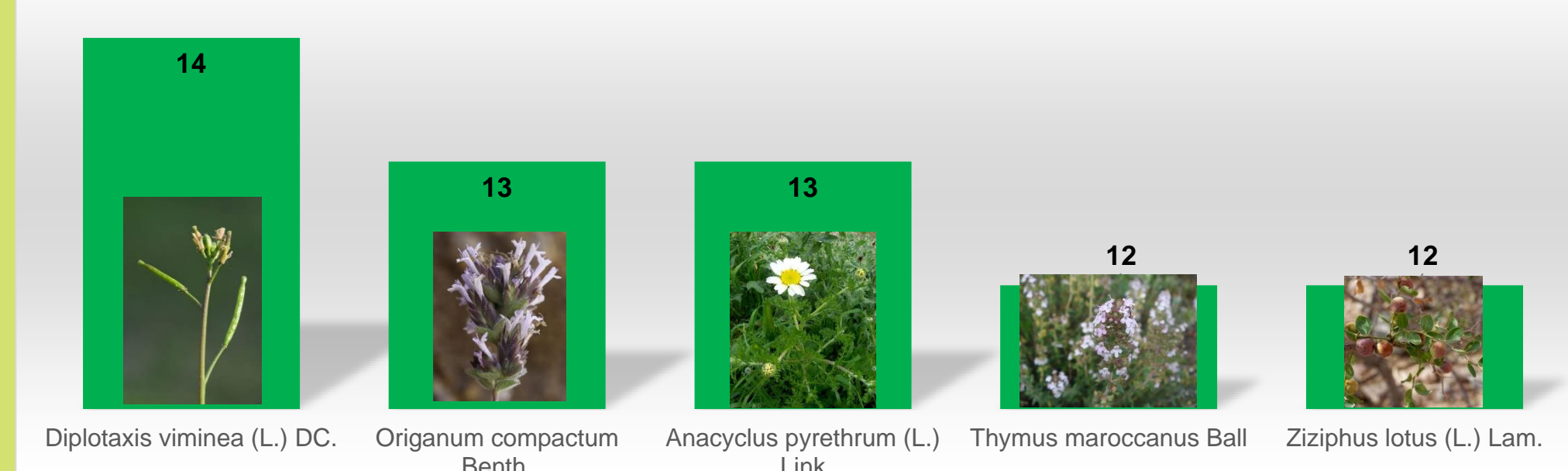
Prioritization approach using 5 bioecological criteria

- Biogeographical rarity (data from GBIF)
 - Local rarity (data from GBIF)
 - Endemism (data from Moroccan list of vascular plant)
 - Threat status (data from Moroccan vascular plant Red Data Book)
 - Adaptability to climate variations (data from GBIF).
- Possible score ranged from 0 to 16.

27 species were identified as conservation priorities using ecological criteria only (score > 8).



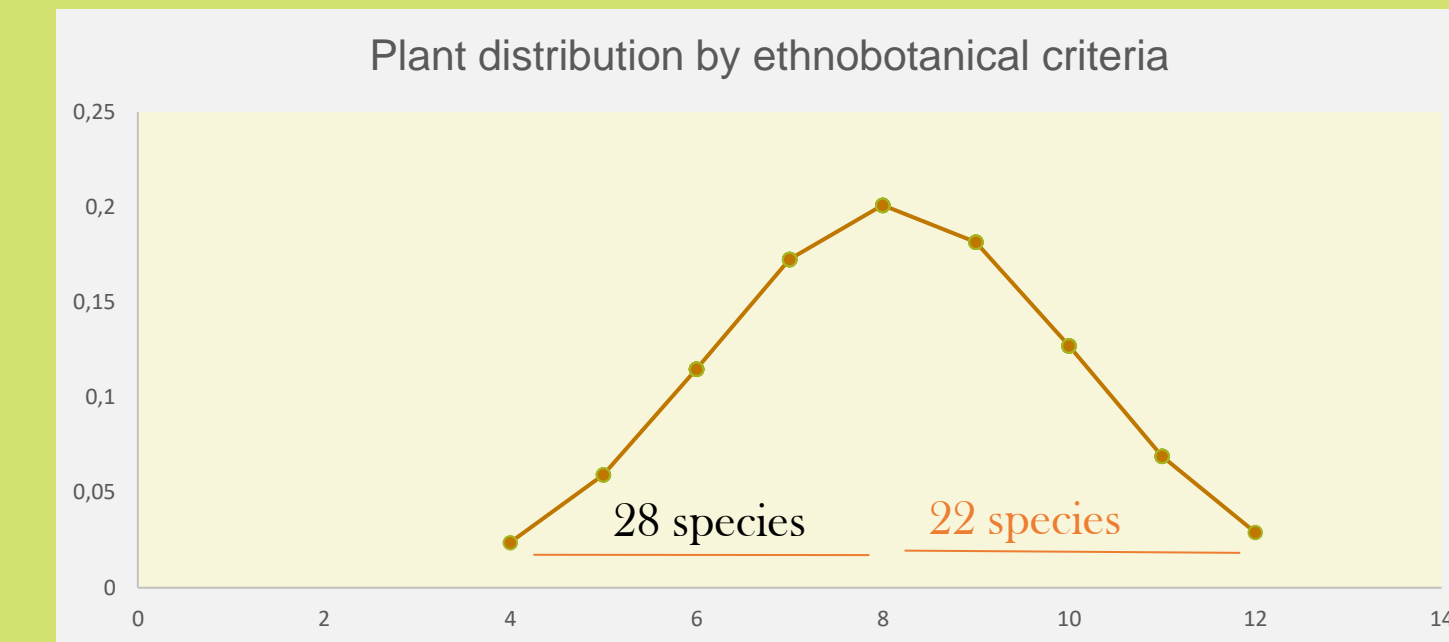
The top 5 prioritized species based on ecological criteria.



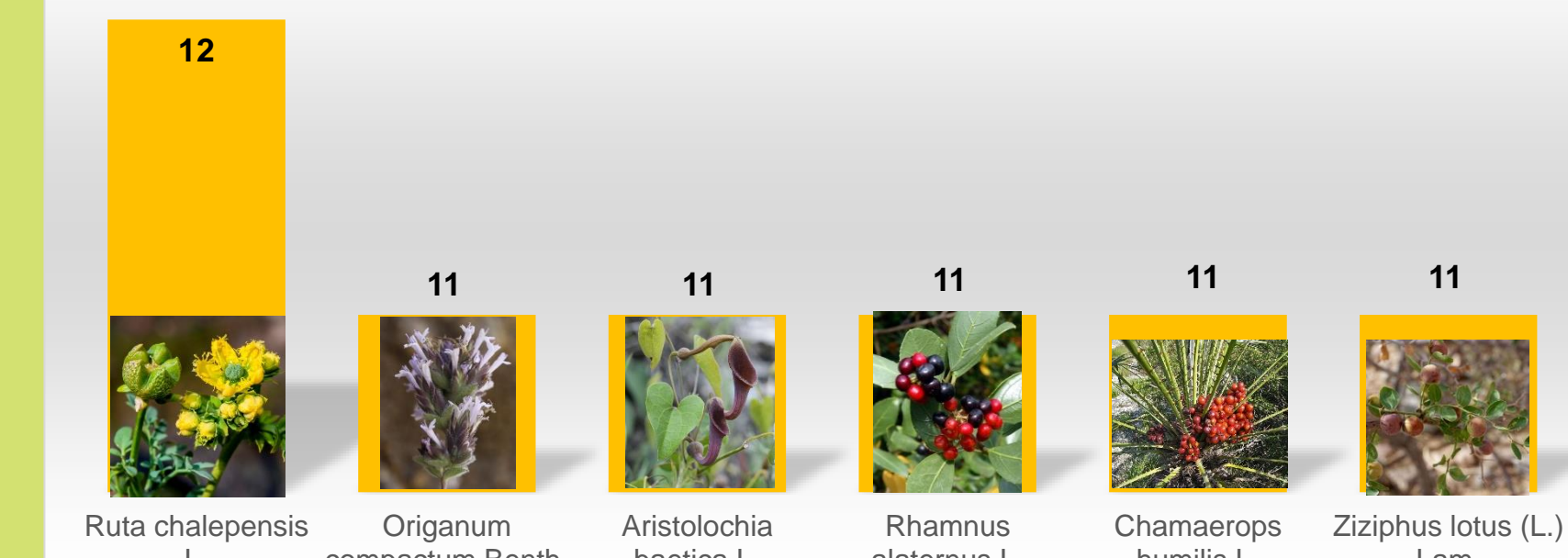
Prioritization approach using 4 ethnobotanical criteria

- Mode of harvesting (surveys)
 - Use value (surveys)
 - Frequency of citation (surveys)
 - Economic value data (surveys).
- Possible score range from 4 to 14.

22 species were identified as conservation priorities using ethnobotanical criteria only. (Score >9).

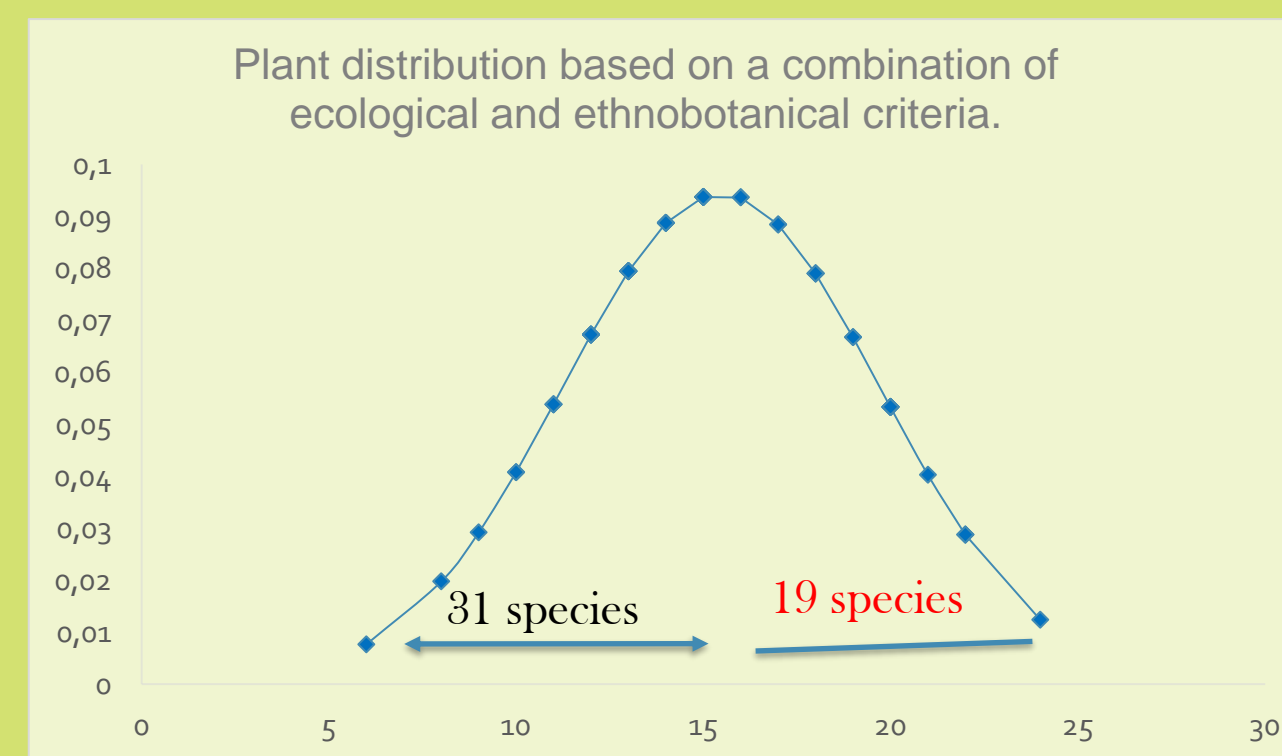


The top 6 prioritized species based on ethnobotanical criteria.

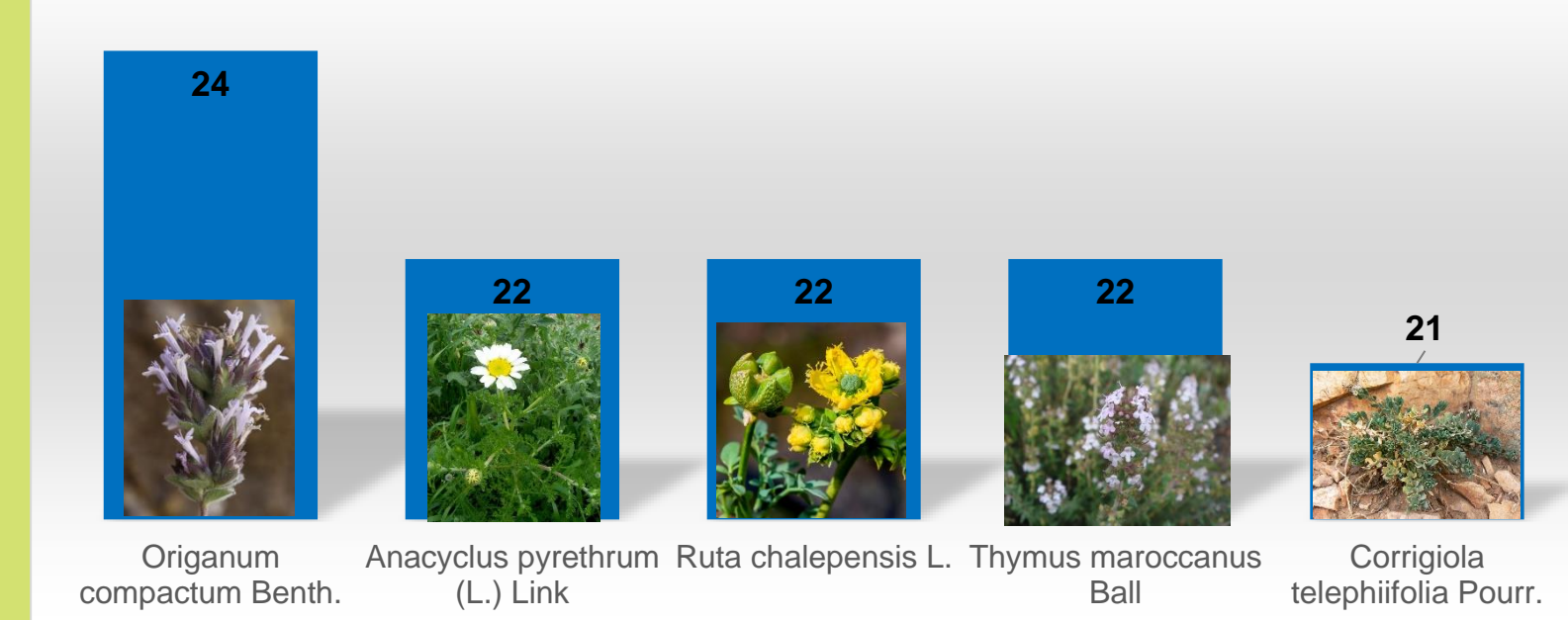


Results

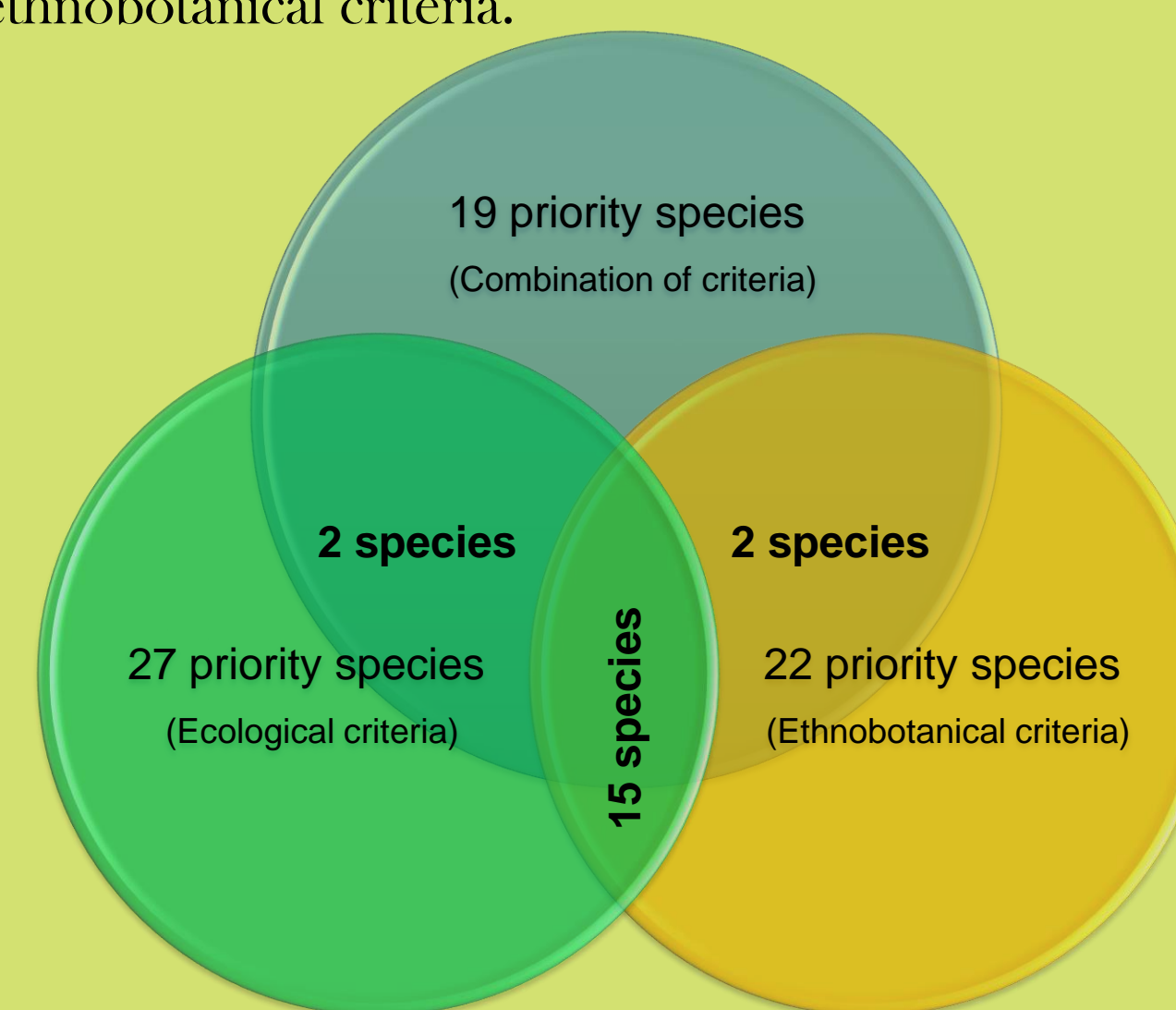
Based on combination of the nine prioritized criteria, a total of 19 plant species were identified (score > 16).



The top 5 prioritized species based on ecological and ethnobotanical criteria.



Finally, the overall list of 19 species is composed of 15 species present in the 2 other lists and 2 species present only in the list of ecological criteria and also 2 species present only in the list of ethnobotanical criteria.



Venn diagram showing the intersection between the 3 approaches used.

Conclusion

- 19 plant species need immediate conservation action for their sustainable utilization.
- Mass production using conventional (vegetative and seeds) methods, establishment and maintenance of herbal gardens and medicinal plants nurseries for ex situ conservation and ensuring the availability of quality planting material for cultivation.
- Education and awareness programmers for large-scale cultivation are suggested.
- Our study highlights the medicinal plants that should be given conservation priority for human and ecosystem health, but it is in no way complete. It is highly recommended that populations of medicinal species be assessed in other regions.