Conservation of Lebanese Coastal Plants: Mission Impossible?

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The Lebanese Coast

ca. 220 km
5 coastal KBAs
Only 2 protected areas!
Why Coastal Plants and Habitats?

Threatened by urbanization!!
Lebanese Coastal Flora

- 550 coastal species/2600

- “strict concensus” of Post 1932; Mouterde 1966-1984; Hepper and Zahreddine 2000; Tohme and Tohme 2015; Itani and Al-Zein [unpublished]

- 3 coastal endemics: *Matthiola crassifolia* and two species of *Limonium*
Rationale of study:

- No revised and updated checklist
- No red list of coastal (15 species assessed)
- No nationally accepted classification for habitats types

Aims of study:

- Characterize coastal habitats and assessing their conservation value
- Prioritize coastal habitat conservation and their species
- Switch from species-based to ecosystem-based in situ conservation
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Methodology

- 150 plots
- In undisturbed areas
- Report plant species abundance (Braun Blanquet scale)
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Coastal Flora

403 species
81 families

- 84% indigenous
- 10% exotic
- 6% Lebanon endemic
- 3% Levant endemic
- 6% Northeastern endemic

Supported by:

IUCN
CARE MEDIIFLORA
Global Diversity Foundation
L-Università ta' Malta
MAVA
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Cluster Analysis of Plots
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Redundancy Analysis of Plots
# Coastal Habitats

<table>
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<tr>
<th>Group number</th>
<th>Number of plots</th>
<th>Description of the sampling sites</th>
<th>Assigned habitat name</th>
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<td>Group 1</td>
<td>17</td>
<td>Rocky sea cliffs</td>
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<td>Group 2</td>
<td>13</td>
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<td>Group 6</td>
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<td>Thickets of giant reed (<em>Arundo donax</em>)</td>
<td>Reed stands</td>
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<tr>
<td>Group 7</td>
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<td>Disturbed areas, rubbles, nearby sidewalks, ruins, dominated by pioneer species</td>
<td>Ruderal communities</td>
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<tr>
<td>Group 8</td>
<td>3</td>
<td>Sides of coastal streams</td>
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Plant Diversity (Simpson Index) by Habitat

- sea_rocks: 0.7
- sand: 0.775
- stream: 0.85
- reed: 0.925
- cliffs: 1
- ruderal: 0.925
- sandy_grass: 0.925
- rocky_grass: 0.925
Exotic, Indigenous, Endemic???
Life-form spectra per habitat type in mean cover-abundance
Coastal Cliffs
High Conservation Value

- Harsh environment
- **Variable** species richness
- **Highest** endemism
- Mostly *chasmophytes* with other biological types
- Indicator species: *Galium canum, Inula crithmoides, Crithmum maritimum*
Coastal Cliffs
High Conservation Value

• Dominance of chamaephytes (>45%) and hemicryptophytes (>20%)

• Rare habitats scattered along the coast

• Limited threats
### Conservation Value

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Conclusion

• From red listing species to red listing ecosystems

• Giving priority to in situ conservation

• Simultaneous planning for species and ecosystem targets
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