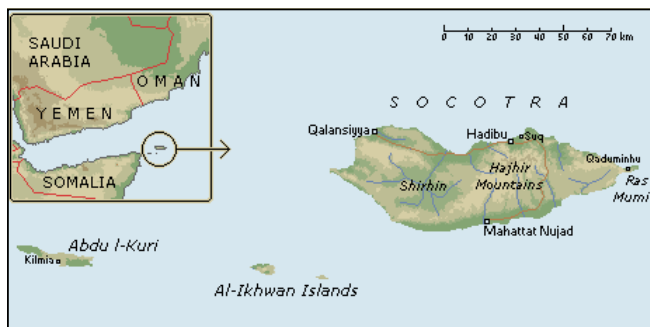


## Studium vegetace ostrova Sokotra pomocí geoinformačních metod



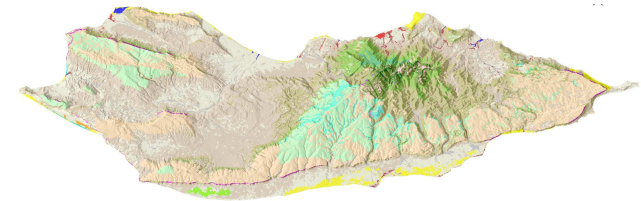
- Největší z Jemenských ostrovů (rozloha činí cca 3600 km<sup>2</sup> – na délku má ostrov asi 130 a na šířku 35 km).
- Biogeograficky součástí Afriky (nejvýchodnější – leží cca 240 km od mysu Guardafui a 380 km od pobřeží Arabského poloostrova).
- Z přírodovědného hlediska je jedním z nejzajímavějších míst na světě. Jeho unikátní charakter je výsledkem dlouhé izolace od Afrického kontinentu a místní endemismus (37% známých cévnatých rostlin) činí ostrov vysoce zajímavým pro světovou ochranu přírody.

### **Dílčí cíle:**

- Sestavit mapu klasifikace krajinného pokryvu ostrova (jako prostředek diferenciacce současného stavu vegetace)
- Alespoň rámcově zmapovat vegetační stupně ostrova pomocí dat DPZ
- Ověřit možnosti využití multi-temporálních dat DPZ pro charakteristiku vlivu monzunů na sezónní dynamiku geobiocenóz ostrova Sokotra a přispět k poznání této dynamiky

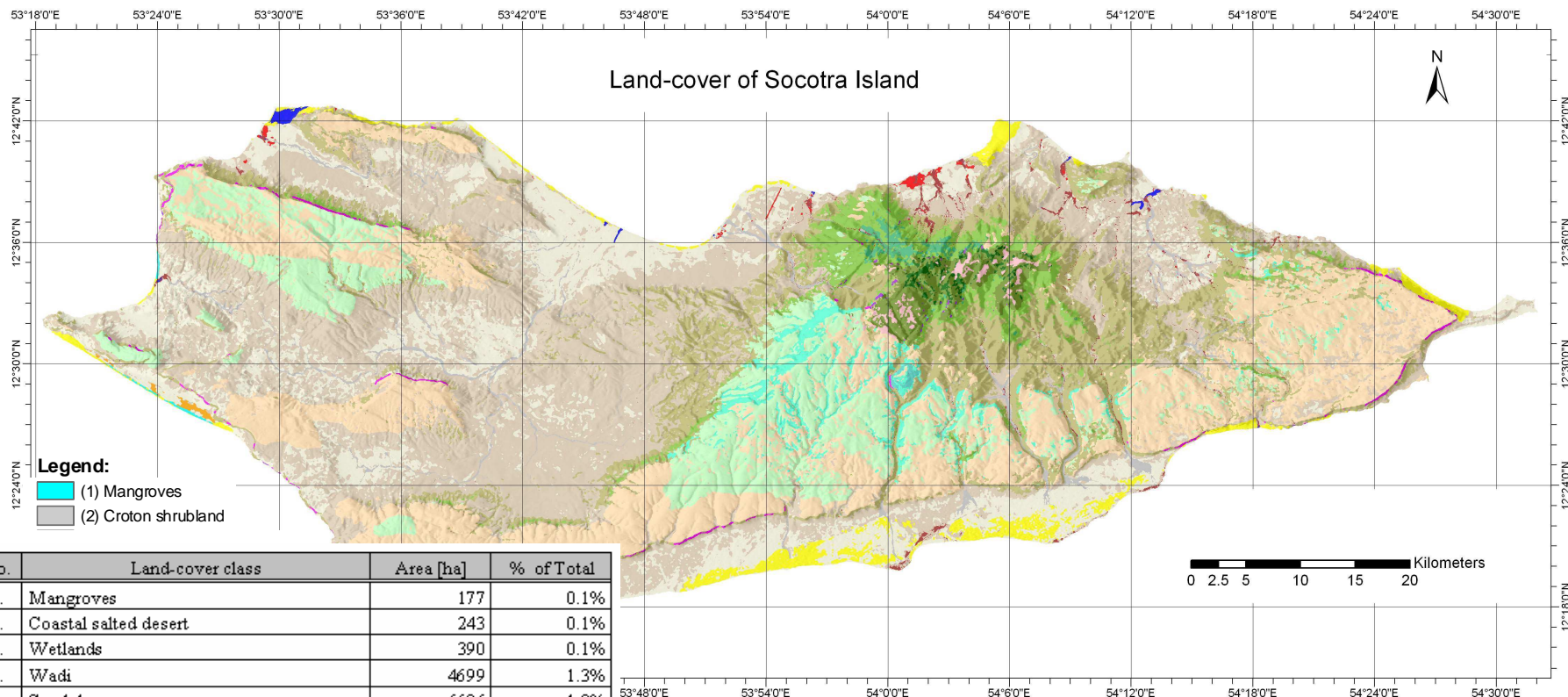
# Studying vegetation of the Soqotra Island by geoinformation methods

## Part I: Landcover map

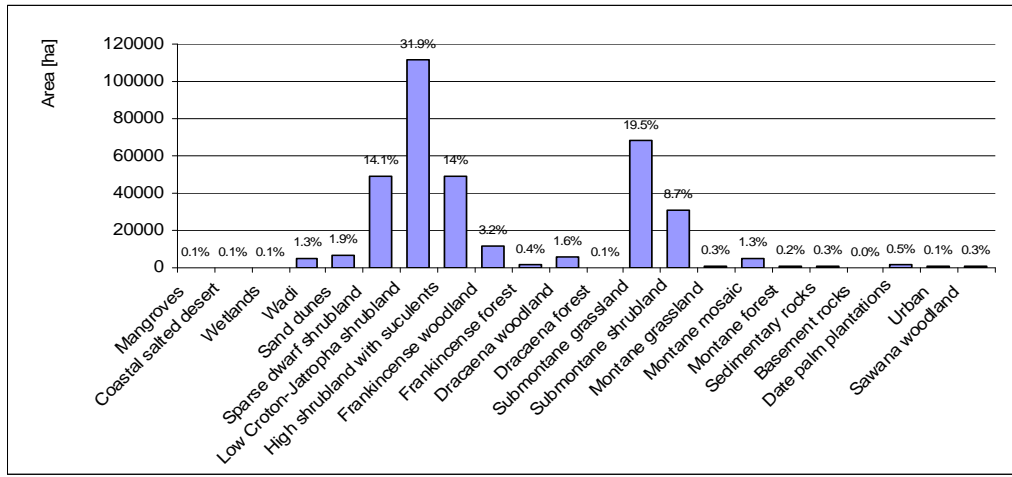


- The floristic surveys already allow a detailed description of the flora and vegetation of Socotra to be made,
- however, existing relevant map products (vegetation maps) do not match with this high level of knowledge,
- the new land-cover map of the Soqotra Island should fill the knowledge gap and bring important detailed grounds for effective and relevant decision-making and management of local natural resources.

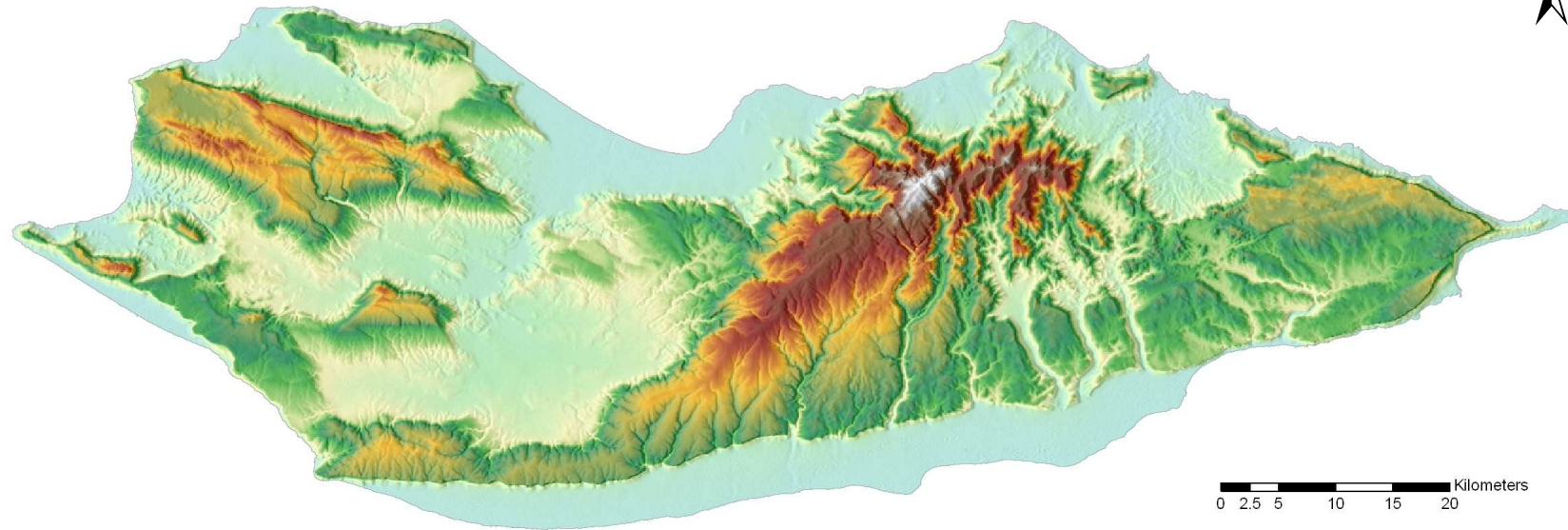
# Mapování vegetace



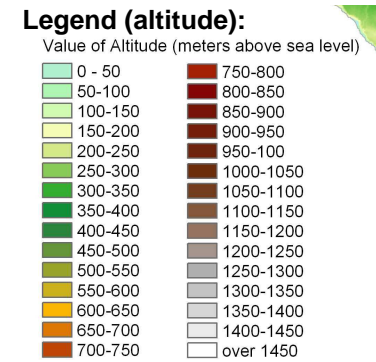
No.	Land-cover class	Area [ha]	% of Total
2.	Mangroves	177	0.1%
3.	Coastal salted desert	243	0.1%
4.	Wetlands	390	0.1%
5.	Wadi	4699	1.3%
6.	Sand dunes	6606	1.9%
7.	Sparse dwarf shrubland	49574	14.1%
8.	Low Croton-Jatropha shrubland	111638	31.9%
9.	High shrubland with succulents	48911	14.0%
10.	Frankincense woodland	11339	3.2%
11.	Frankincense forest	1258	0.4%
12.	Dracaena woodland	5765	1.6%
13.	Dracaena forest	234	0.1%
14.	Submontane grassland and dwarf shrubland	68409	19.5%
15.	Submontane shrubland	30535	8.7%
16.	Montane grassland	1012	0.3%
17.	Montane mosaic	4586	1.3%
18.	Montane forest	822	0.2%
19.	Sedimentary rocks	1141	0.3%
20.	Basement rocks	150	0.0%
21.	Date palm plantations	1619	0.5%
22.	Urban	440	0.1%
23.	Savanna woodland	925	0.3%



# Hypsometrie x Landcover

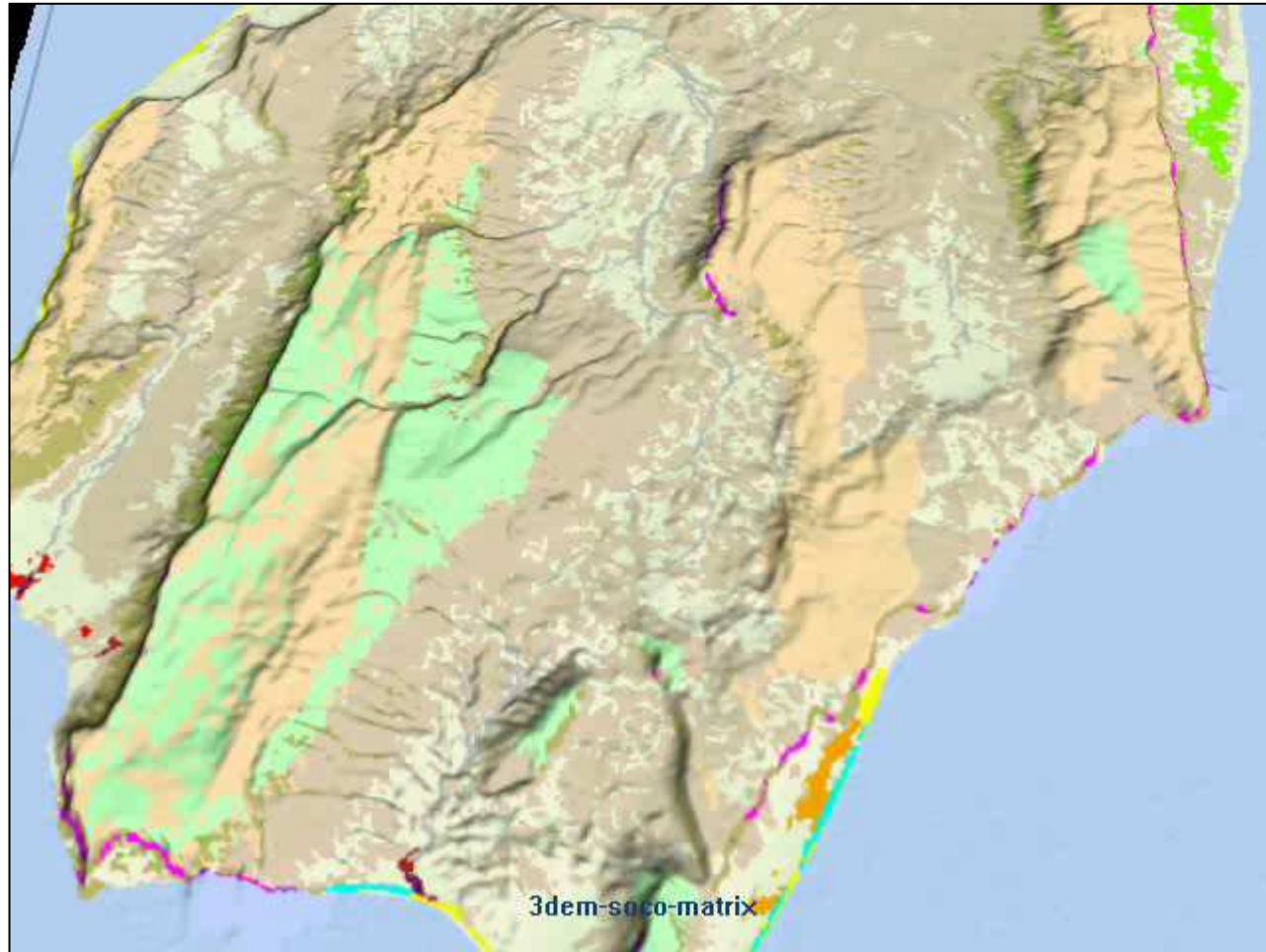


No.	Land-cover class	Mean Altitude [m]	Mean Slope [°]	Stand. Dev. Altitude	Stand. Dev. Slope
2.	Mangroves	0	0	-	-
3.	Coastal salted desert	5	1	2	2
4.	Wetlands	4	3	6	5
5.	Wadi	96	4	77	6
6.	Sand dunes	40	7	69	12
7.	Sparse dwarf shrubland	85	4	92	6
8.	Low Croton-Jatropha shrubland	184	7	125	7
9.	High shrubland with succulents	322	19	150	11
10.	Frankincense woodland	507	22	207	10
11.	Frankincense forest	633	25	205	9
12.	Dracaena woodland	624	15	206	9
13.	Dracaena forest	647	12	54	7
14.	Submontane grassland and dwarf shrubland	481	8	140	6
15.	Submontane shrubland	606	8	147	6
16.	Montane grassland	1010	13	109	7
17.	Montane mosaic	981	24	197	10
18.	Montane forest	1055	25	241	10
19.	Sedimentary rocks	391	54	166	6
20.	Basement rocks	733	53	309	5
21.	Date palm plantations	79	4	104	5
22.	Urban	17	2	16	3
23.	Savanna woodland	26	1	7	1



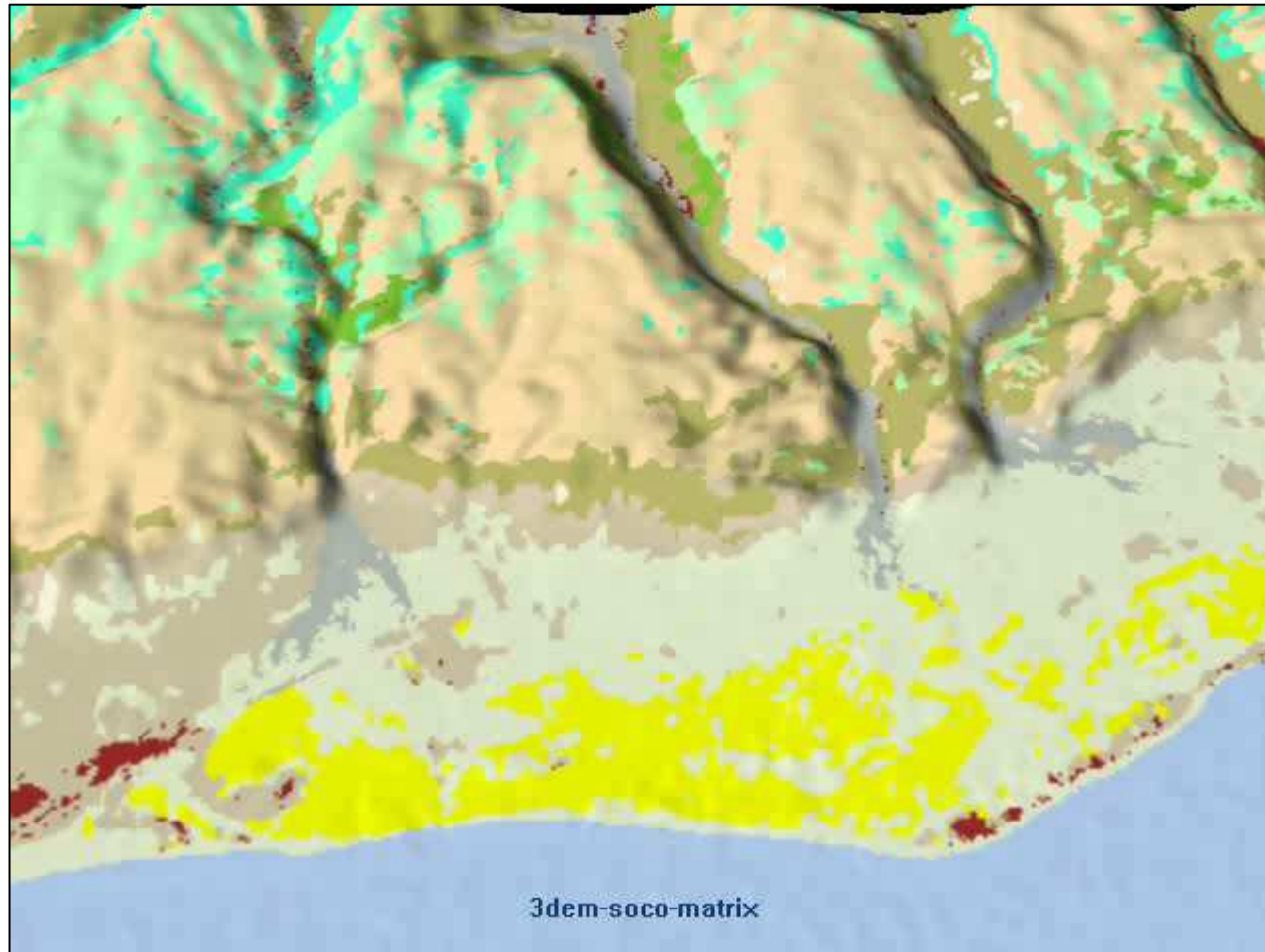






**Legend:**

- (1) Sea
- (2) Mangroves
- (3) Coastal salted desert
- (4) Wetlands
- (5) Wadi
- (6) Sand dunes
- (7) Sparse dwarf shrubland
- (8) Low Croton-Jatropha shrubland
- (9) High shrubland with succulents
- (10) Frankincense woodland
- (11) Frankincense forest
- (12) Dracaena woodland
- (13) Dracaena forest
- (14) Submontane grassland & dwarf shrub.
- (15) Submontane shrubland
- (16) Montane grassland
- (17) Montane mosaic
- (18) Montane forest
- (19) Sedimentary rocks
- (20) Basement rocks
- (21) Date palm plantations
- (22) Urban
- (23) Savanna woodland



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- (18) Montane forest
- (19) Sedimentary rocks
- (20) Basement rocks
- (21) Date palm plantations
- (22) Urban
- (23) Savanna woodland

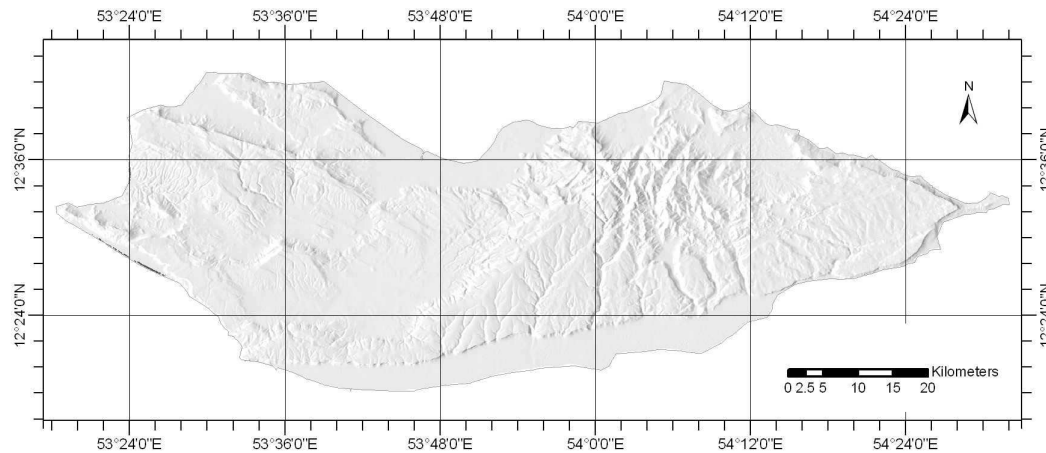
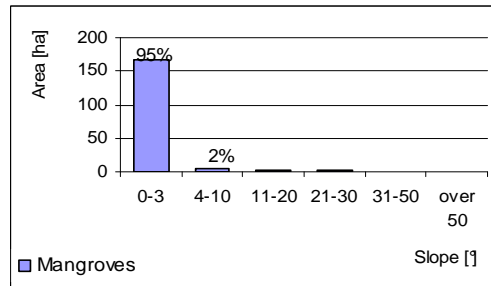
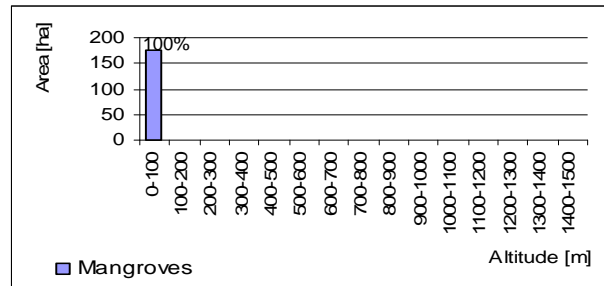


## (2) Mangroves



**Own description:** local narrow belts at three points along the coasts of Socotra. The best examples of mangroves dominated by *Avicennia marina* are found along the coast at Neet and in Bandar Shu'ub

Distribution of altitudes and slopes within the Land-Cover class:



**LCC Label:** Semi-Evergreen Medium High Forest On Temporarily Flooded Land; Major Landclass: Level Land, Plain, Slopeclass: Flat to Almost Flat; Water Quality: Saline; Floristic Aspect: Mangroves (*Avicennia marina*)

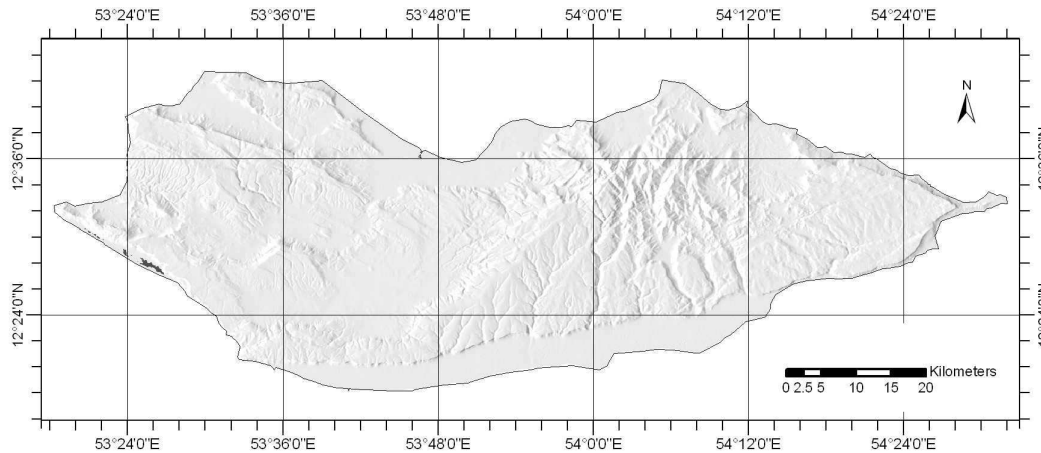
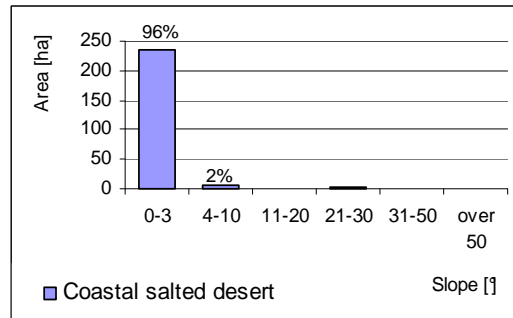
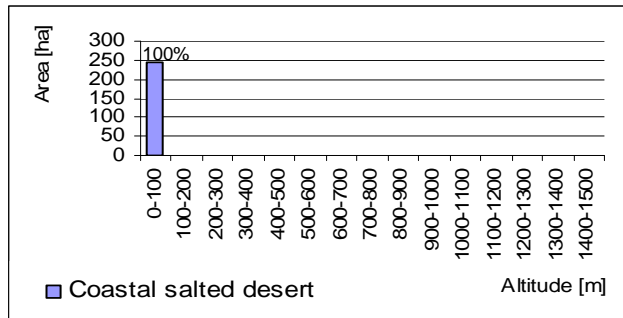
**LCC Level:** A3A12B2C2D1E1F1-B6E3-L11L5R3Zt20

### (3) Coastal salted desert



**Own description:** coastal salt marshes, almost without vegetation, periodical tidal flooding

Distribution of altitudes and slopes within the Land-Cover class:



**LCC Label:** Tidal Area (Standing) (Surface Aspect: Sand); Altitude: < 50 - 300 m; Salinity: Brine

**LCC Level:** A1B3-A5B6-P1V5

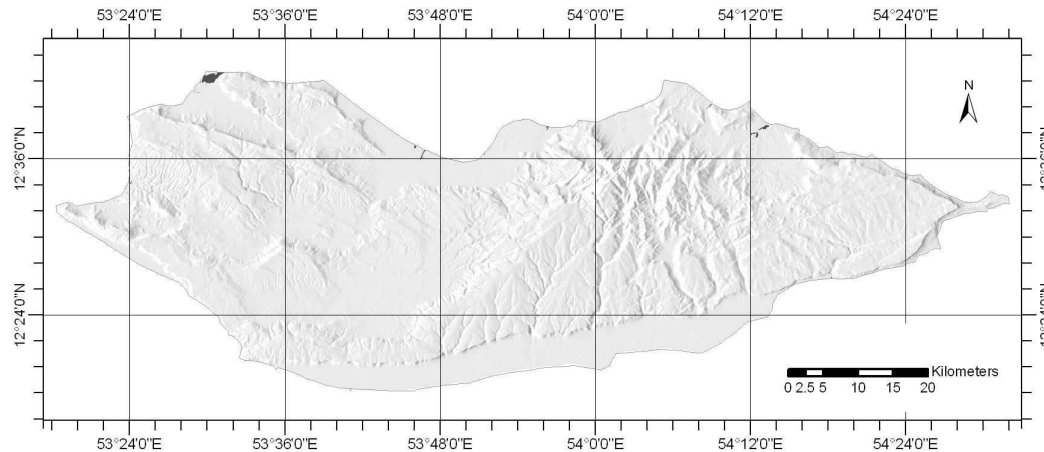
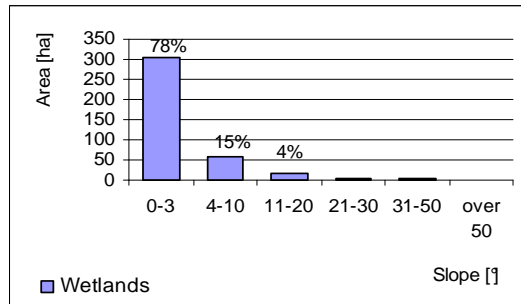
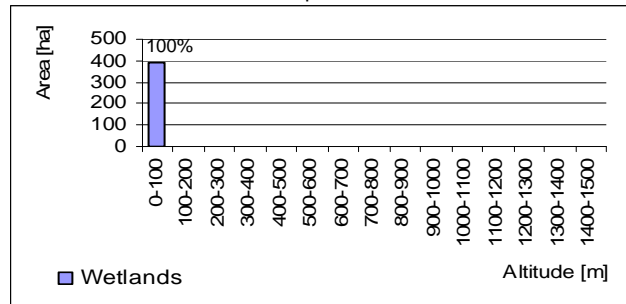
## (4) Wetlands



### Own description:

occur particularly on the northern coast mainly in estuaries of north running wadis as small fresh or brackish lagoons separated from the sea by spits and bars. The largest lagoon is found near Qalansiyah on northwest part of Socotra.

Distribution of altitudes and slopes within the Land-Cover class:



LCC Label: Tidal Area (Standing) (Surface Aspect: Sand)

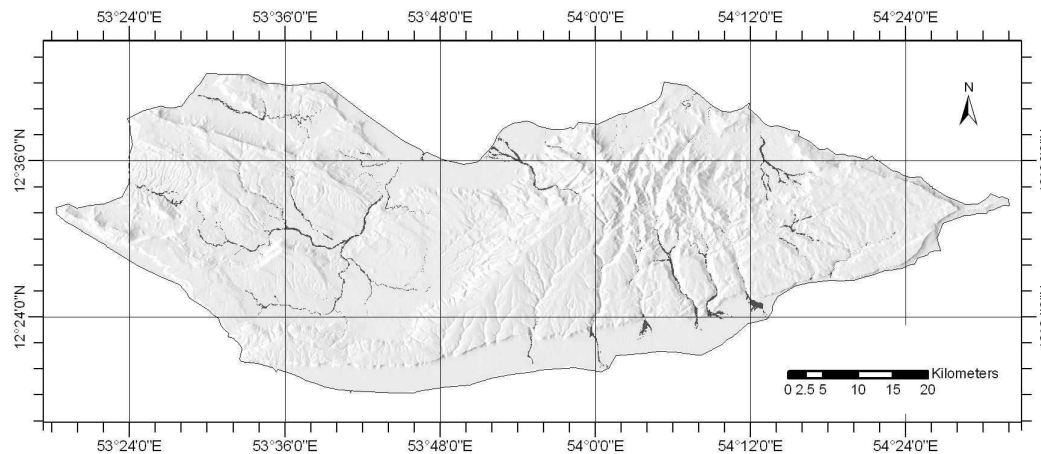
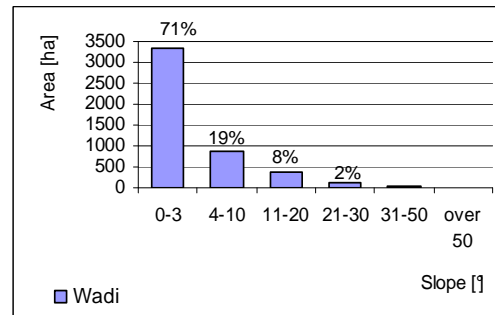
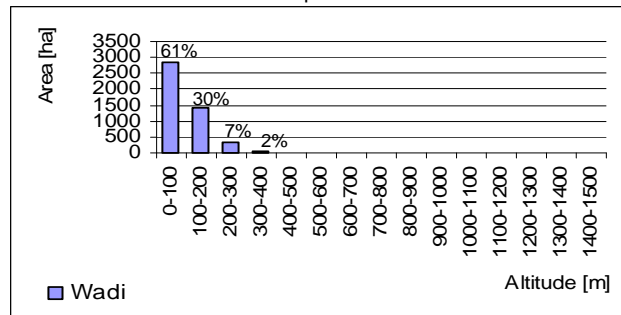
LCC Level: A1B3-A5B6

## (5) Wadi



**Own description:** wide distinct riverbeds of sporadic watercourses. The surface of the streams is formed by diverse boulders, debris and gravel usually without any vegetation cover. Only the stream with the water at or near the surface are lined with groves of *Ficus salicifolia*. The drier, sandy stretches of main watercourses, where surface water is absent most of the year, are characterized by *Zizyphus spina-christi*.

Distribution of altitudes and slopes within the Land-Cover class:



**LCC Label:** Non-Perennial Natural Waterbodies (Flowing)

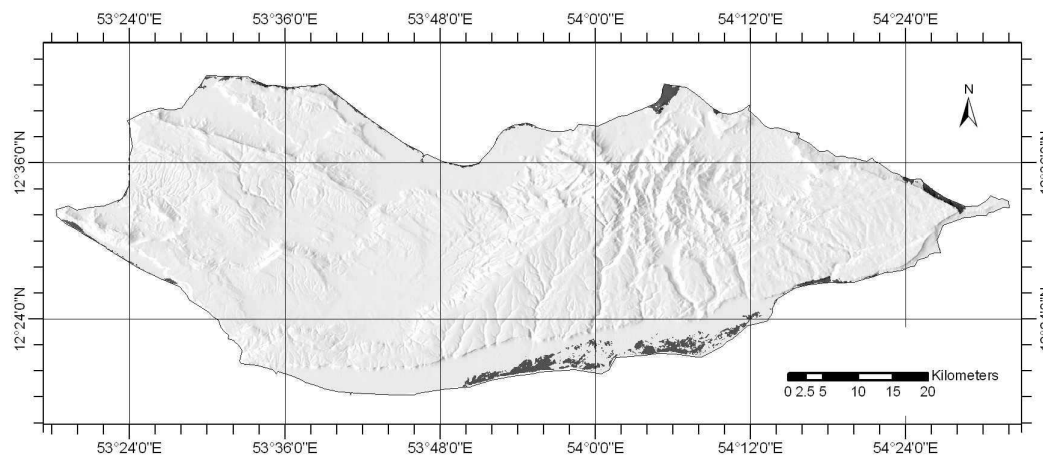
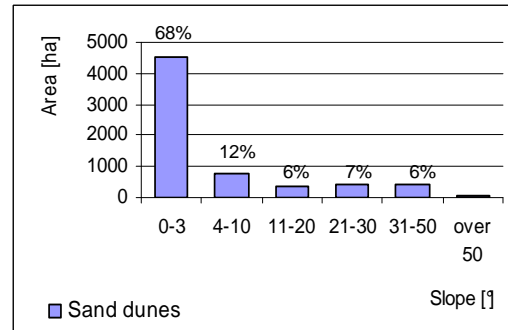
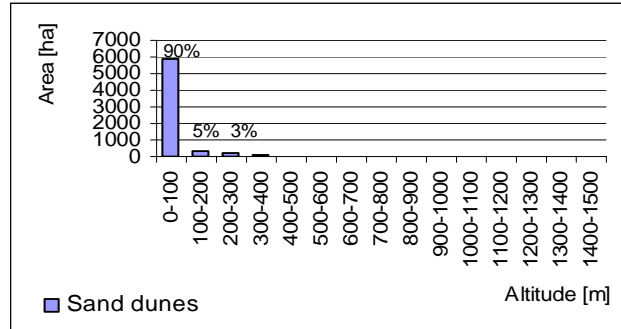
**LCC Level:** A1B2-A4

## (6) Sand dunes



**Own description:** shifting, blowing sand dunes, almost no vegetation. Along the northern coast, at Ras Howlef *Acacia edgeworthii* forms a thin growth, while on the southern coast *Tamarix nilotica* predominates and other species such as *Limonium socotranum*, *Indigofera spiniflora*, etc. occur.

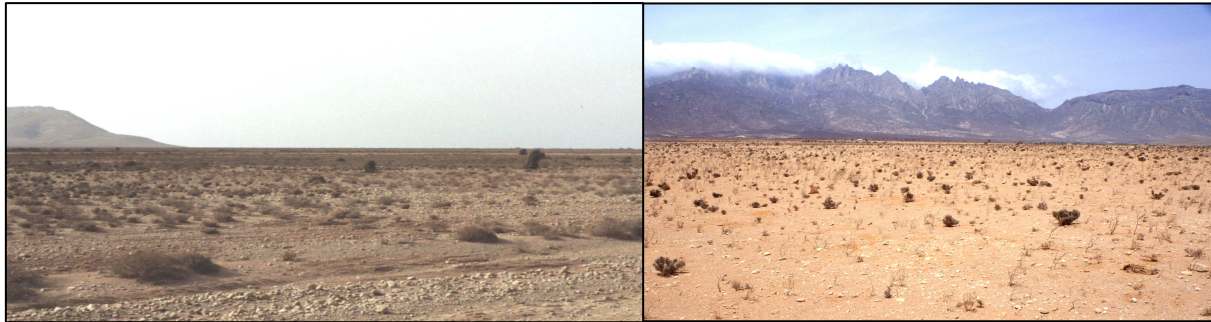
Distribution of altitudes and slopes within the Land-Cover class:



**LCC Label:** Shifting Sands / Dune(s)

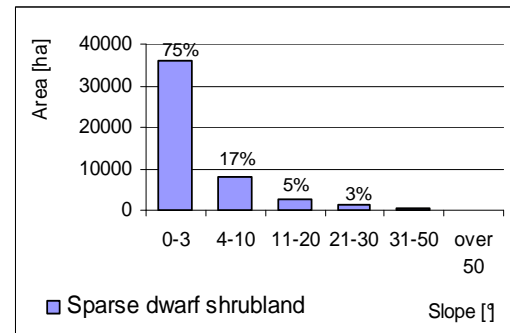
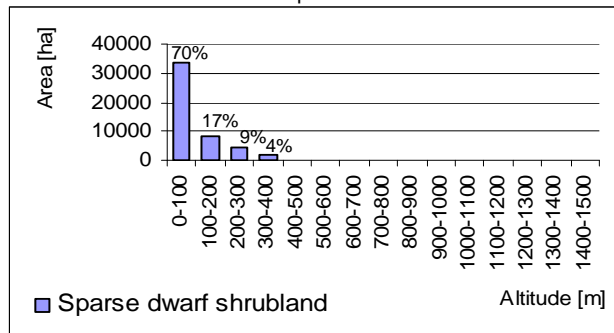
**LCC Level:** A6B1

## (7) Sparse dwarf shrubland

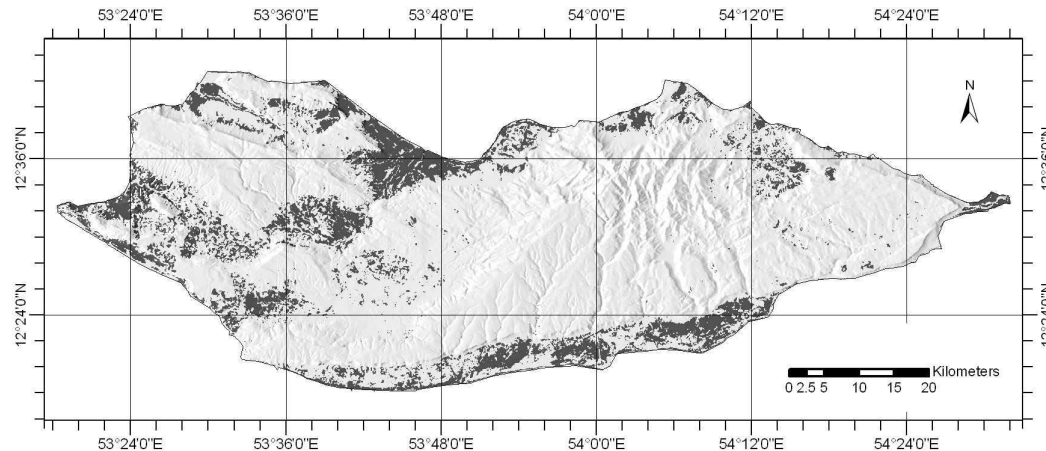


**Own description:** Sparse dwarf shrubland (coastal and/or inland plains) heavily influenced by grazing (overgrazed or degraded). The class merges all sparse dwarf shrublands of lowlands (their height usually do not exceed [0.5]1m), either natural – shaped by unfavourable climate and soil conditions (e.g. dry tough winds, high salinity, etc.), or man made biotopes, which are influenced by heavy overgrazing and wood collection and often arise by degradation of Croton shrubland.

Distribution of altitudes and slopes within the Land-Cover class:



Mostly composed of dwarf (overgrazed) forms of *Placopoda virgata*, *Ballochia* spp., *Commiphora socotrana*, *Lycium socotranum*, *Ormocarpum coeruleum*, *Pulicaria stephanocarpa*, *Indigofera* spp., *Senna* spp., *Tephrosia holosericea*, locally also *Cissus subaphylla*, *Croton socotranus*, *Jatropha unicostata*, *Acacia edgeworthii*, etc



**LCC Label:** Sparse ((20-10) - 4%) Dwarf Shrubs; Major Landclass: Level Land, Plain, Slopeclass: Flat to Almost Flat; Altitude: < 50 - 300 m; Floristic Aspect: low shrubland (Croton)

**LCC Level:** A4A14B3-A15B10-L11L5P1Zt2