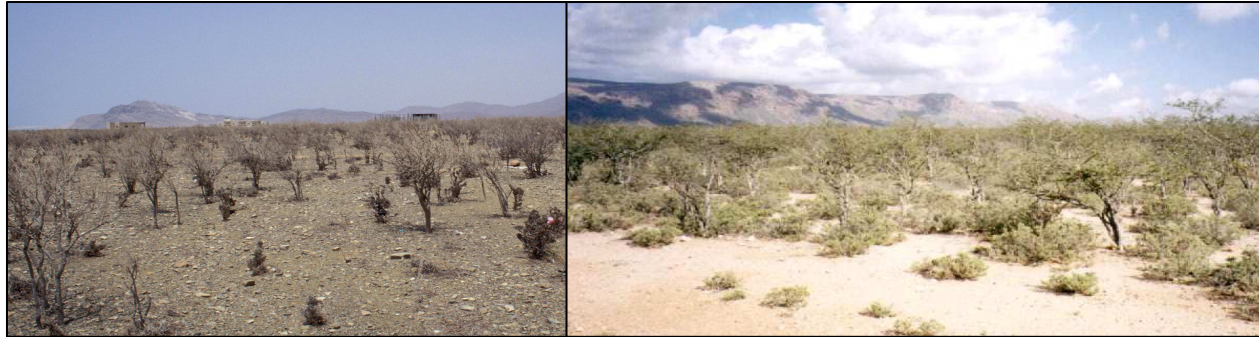


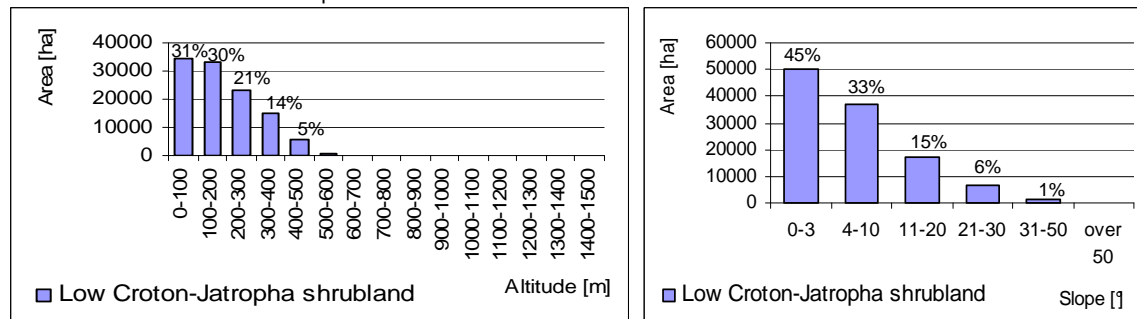
(8) Low Croton-Jatropha shrubland



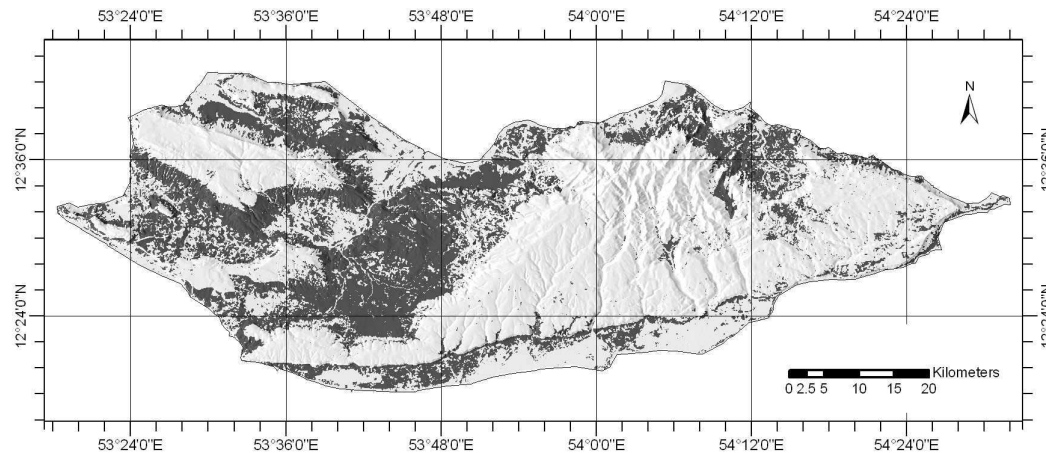
Own description: occupy coastal and inland lowlands; it frequently encroaches on neighbouring low rolling hills and often remains dominant there. Prevailing Croton and/or Jatropha (coastal and/or inland plains); height up to 2(3) m; cover sparse-close.

In the second altitudinal vegetation zone *Commiphora socotrana* is present frequently.

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



As for the species composition, the class is dominated by *Croton socotranus* further represented by *Jatropha unicostata*, *Cissus subaphylla*, *Lycium sokotranum*, *Trichocalyx* spp., *Plagopoda virgata*, *Zygocarpum coeruleum*, *Ballochia* spp. etc.



LCC Label: Broadleaved Evergreen Medium High Shrubland

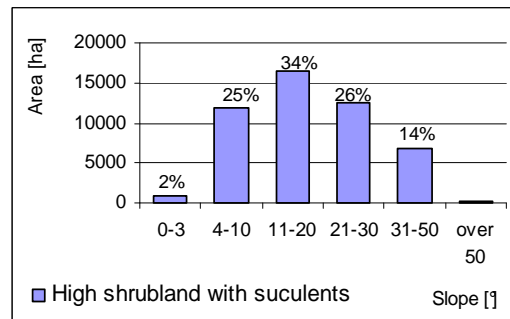
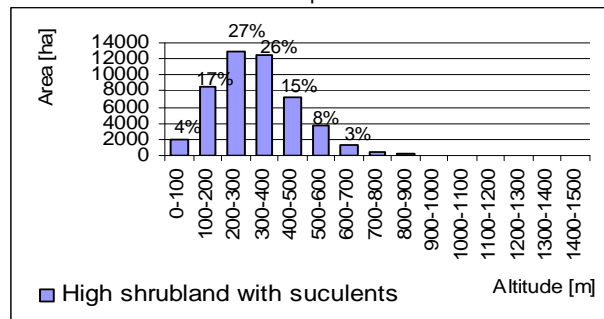
LCC Level: A4A11B3C1D1E1-B9

(9) High shrubland with succulents

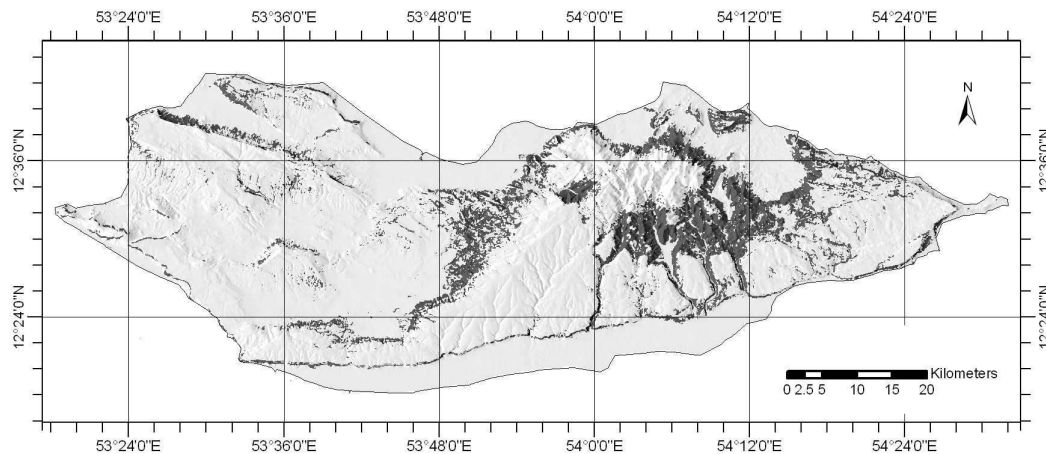


Own description: well-represented vegetation type occupying steep foothills and slopes of central granitic mountains as well as foothills of most of the limestone plateaus. The height of the general level of the upper canopy usually range from 2 to 4(5)m, though at some exposed sites (especially on basement rocky slopes) can be considerable lower.

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



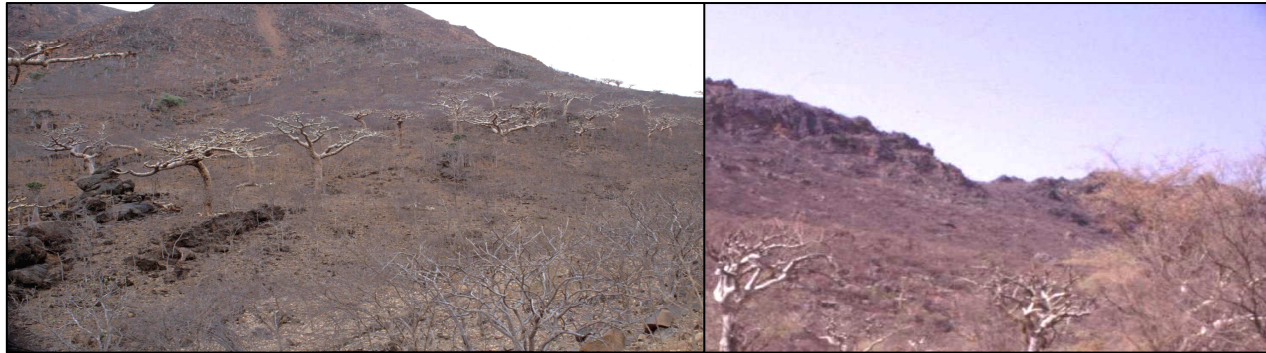
The shrubland is to a large extent composed of *Adenium obesum* ssp. *sokotranum* and *Dendrosicyos socotrana*, other common species are *Jatropha unicostata*, *Croton socotranus*, *Euphorbia arbuscula*, *Cissus subaphylla*, *Trichocalyx* spp., *Lycium sokotranum*, etc.



LCC Label: Semi-Deciduous (40 - (20-10)%) High Shrubland With High Shrub Emergents; Major Landclass: Steep Land, High-Gradient Escarpment Zone, Slopeclass: Steeply Dissected to Mountainous; Soils: Soil Surface, Very Stony (40 - 80 %); Floristic Aspect: *Adenium obesum*, *Dorstenia gigas*, *Dendrosicyos socotrana*.

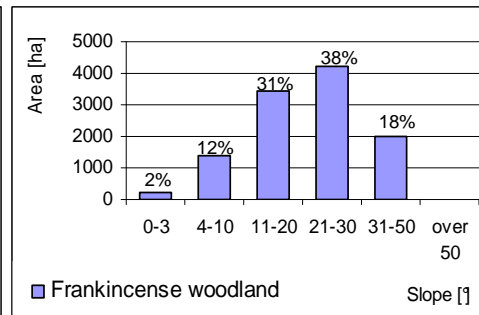
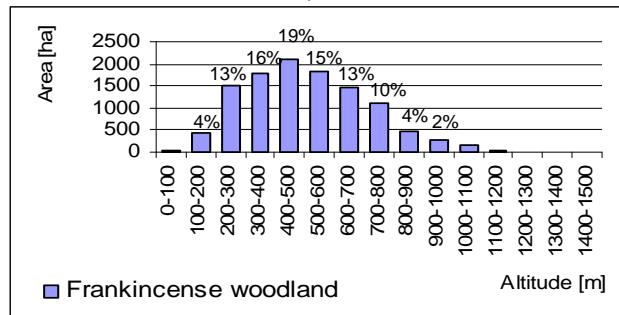
LCC Level: A4A11B3XXD1E2F2F6F10G3-A13B8E4G8-L33L9N2N5Zt9

(10) Frankincense woodland

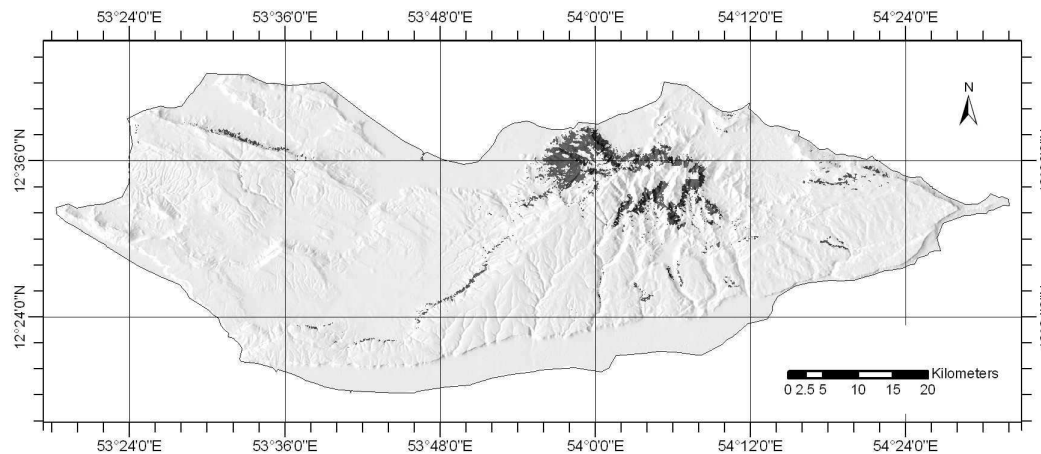


Own description: develops on steep hill-sides and stony slopes. It is often a continuation of 'High shrubland with succulents' in higher parts of slopes. From the previous class it is distinguished by presence of tree species. The canopy closure of trees that are higher than 4(5)m should range from 5 to 30%.

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



The species composition is a rich and varied one, dominated by deciduous trees and shrubs such as (trees): *Boswellia elongata*, *B. ameero*, *B. socotrana*, *Commiphora ornifolia*, *C. parvifolia*, occasionally *Maerua angolensis* var. *socotrana*, *Commiphora socotrana*, in some places also *Lanea transulta*, on stony slopes *Sterculia africana* var. *socotrana* and *Euphorbia arbuscula*, and in higher parts *Dracaena cinnabari*.



LCC Label: Semi-Deciduous (40 - (20-10)%) Woodland With Open Medium High Shrubs; Major Landclass: Sloping Land, Medium-Gradient Hill, Slopeclass: Hilly; Soils: Soil Surface, Stony (5 - 40 %); Climate: Tropics - Dry semi-arid; Altitude: 200 - 1100 m; Floristic Aspect: *Boswellia* sp., *Commiphora* sp.

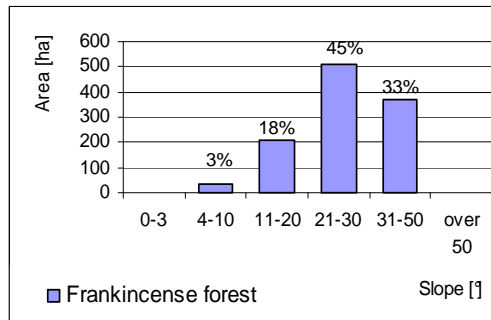
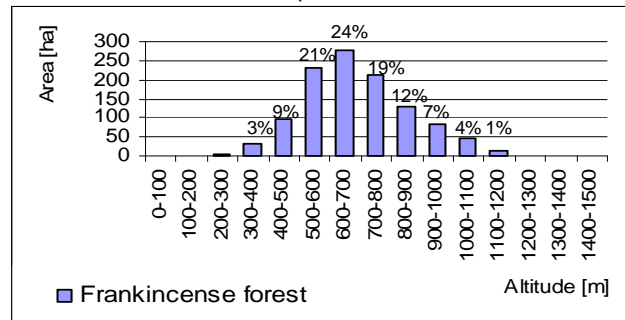
LCC Level: A3A11B2C1D1E2F2F6F7G3F1-A13B6E4F9G9-L22L8N2N4O1O11P2Zt10

(11) Frankincense forest

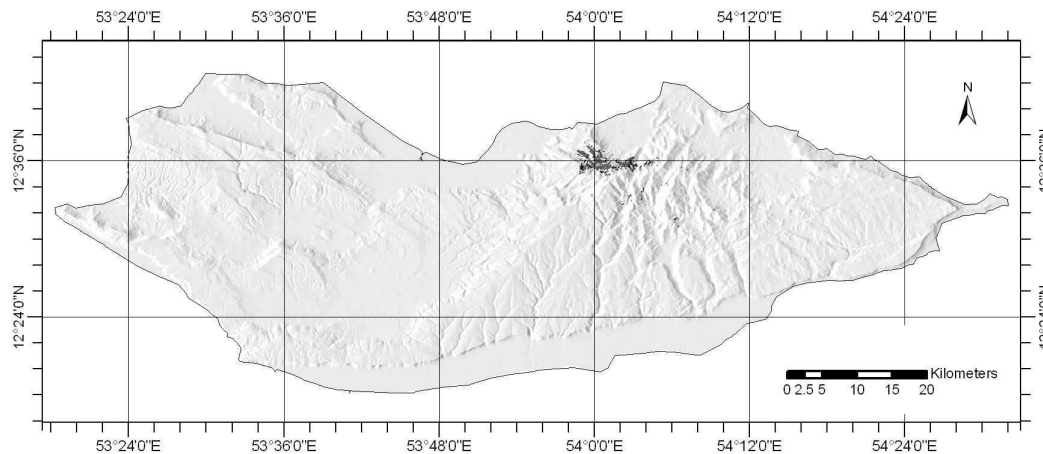


Own description: preferably occupies sheltered valleys and ravines. It is largely composed of the same species as frankincense woodlands, however, it differs by closer canopy class (over 30%) of the tree layer.

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



The species composition is very similar to frankincense woodlands. Among trees *Boswellia elongata* preponderates, other common tree species are as follows: *Boswellia* spp., *Commiphora ornifolia*, *C. parvifolia*, occasionally *Maerua angolensis* var. *socotrana*, sometimes also *Lanea transulta*, on stony slopes often *Sterculia africana* var. *socotrana* and *Euphorbia arbuscula*, and in higher parts *Dracaena cinnabari*.



LCC Label: Semi-Deciduous Medium High Forest With Open Medium High Shrubs; Major Landclass: Sloping Land, Medium-Gradient Hill, Slopeclass: Hilly; Climate: Tropics - Dry semi-arid; Altit.: 300 - 1200 m; Floristic Aspect: *Boswellia* sp., *Commiphora* sp.

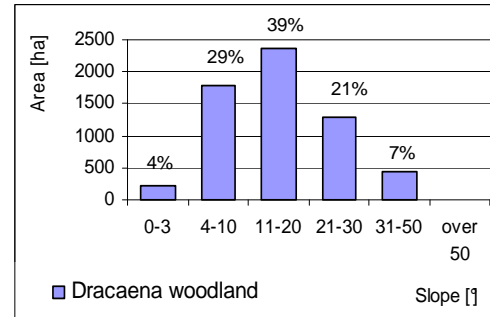
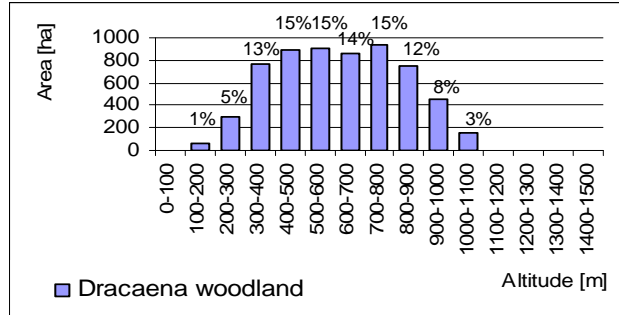
LCC Level: A3A10B2XXD1E2F2F6F7G3F1-B6E4F9G9-L22L8O1O11P2Zt10

(12) *Dracaena* woodland

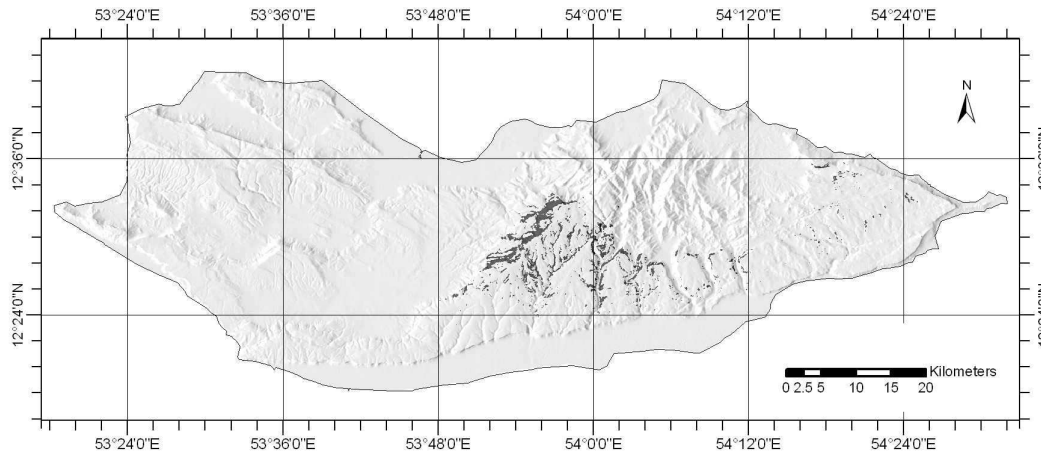


Own description: a typical vegetation type of Socotra that is characterised by evergreen endemic tree *Dracaena cinnabari*. In order to be mapped as this class, the canopy closure of 'Dragon's blood trees' in the formation should range between 5 and 30%. Nevertheless, in some cases, it is possible that areas with lower canopy closure were included.

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



The tree layer is formed and dominated by *Dracaena cinnabari*; at some localities individuals of *Boswellia dioscorides*, *B. ameero*, *Commiphora planifrons*, *C. ornifolia*, *Euphorbia socotrana* can occur. The shrub layer is composed of deciduous species, such as *Croton socotranus*, *Jatropha unicastata*, *Trichocalyx* spp., *Lycium sokotranum*, *Cissus hamaderoensis*, *Buxanthus pedicellatus* (evergreen), *Withania* spp., *Rhus thyriflora*, *Gnidia socotrana*, *Cryptolepis intricata*, etc.



LCC Label: Semi-Deciduous Fragmented (Cellular) (40 - (20-10)%) Woodland With Open Medium High Shrubs; Major Landclass: Sloping Land, Slopeclass: Rolling; Lithology: Calcareous rock; Soils: Soil Surface, Very Stony (40 - 80 %); Climate: Tropics - Dry semi-arid; Altitude: 300 - 1100 m; Floristic Aspect: *Dracaena cinnabari* /; Semi-Deciduous Fragmented (Cellular) ((70-60) - 40%) Medium To High Shrubland With Shrub Emergents

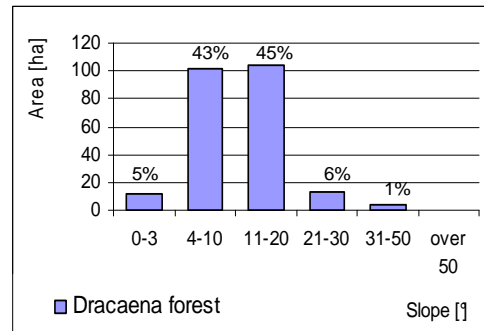
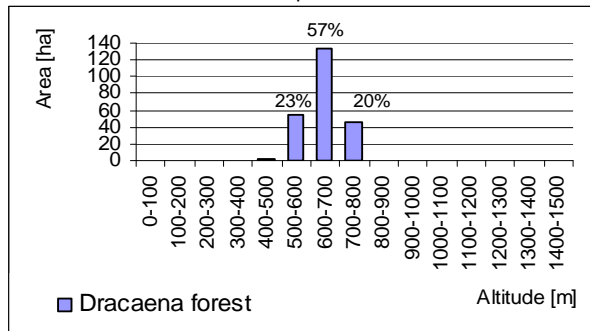
LCC Level: A3A11B2C2D1E2F2F6F7G3F1-A13B6C5E4F9G9-L2L7M230N2N5O1O11P2Z12 / A4A11B3C2D1E2F2F6F10G3-A12B14C5E4

(13) *Dracaena* forest

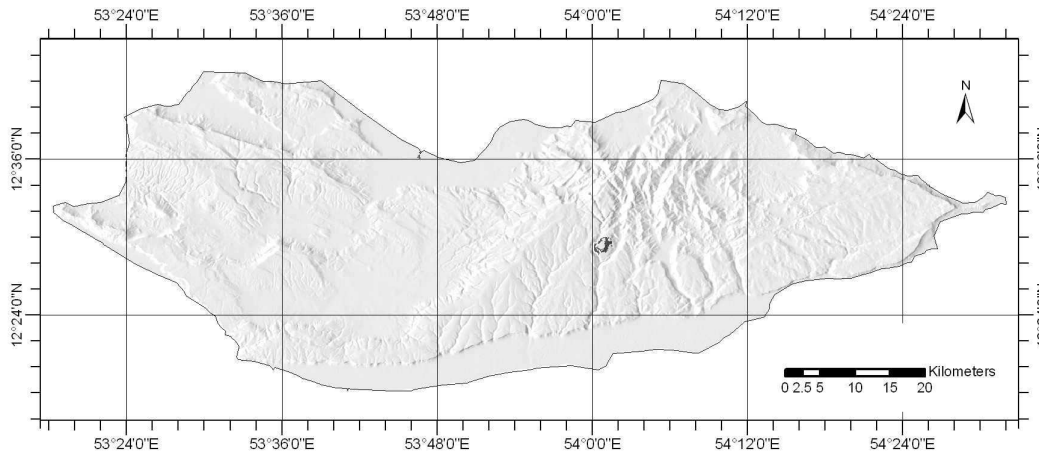


Own description: analogical to the previous class, distinguished only by higher canopy closure of the determinant tree *Dracaena cinnabari* (over 30%). It is restricted to Firmihin locality, since no other stands on Socotra reach sufficient density. This vegetation type is unique to Socotra and as such is extremely important.

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



Species composition is equivalent to *Dracaena* woodlands: The tree layer is represented by *Dracaena cinnabari*; the shrub layer is composed of deciduous species, such as *Croton socotranus*, *Jatropha unicostata*, *Trichocalyx* spp., *Lycium sokotranum*, *Cissus hamaderoensis*, *Buxanthus pedicellatus* (evergreen), *Withania* spp., *Rhus thyriflora*, *Cryptolepis intricata*, etc.



LCC Label: Semi-Deciduous Medium High Forest With Open Medium High Shrubs; Major Landclass: Sloping Land, Slopeclass: Rolling; Lithology: Calcareous rock; Soils: Soil Surface, Very Stony (40 - 80 %); Climate: Tropics - Dry semi-arid; Altitude: 500 - 900 m; Floristic Aspect: *Dracaena cinnabari*

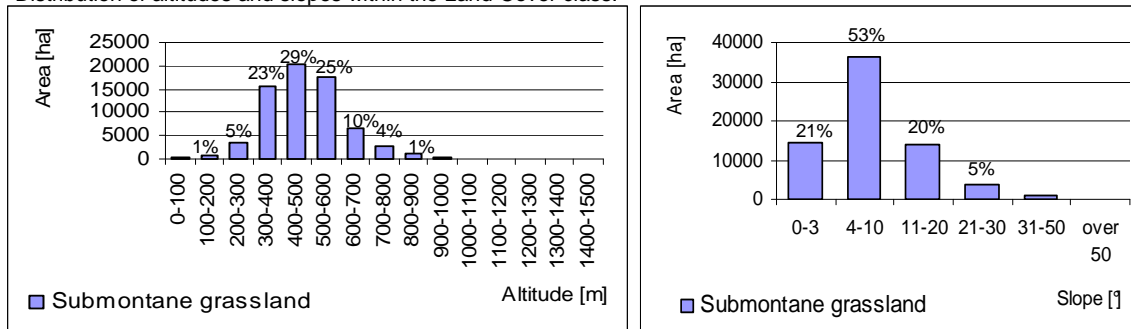
LCC Level: A3A10B2XXD1E2F2F6F7G3F1-B6E4F9G9-L2L7M230N2N5O1O11P2Z112

(14) Submontane grassland

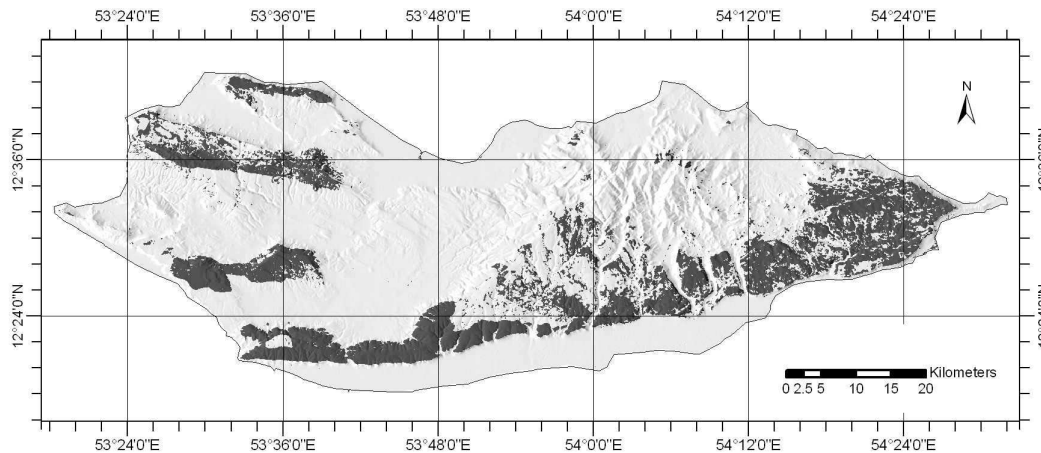


Own description: well-represented landcover class, comprising the grass and woody based herb communities of the limestone plateaus with scarce individuals of dwarf shrubs (their height usually do not exceed 0.5m). It occupies especially flat summits of lower plateaus.

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



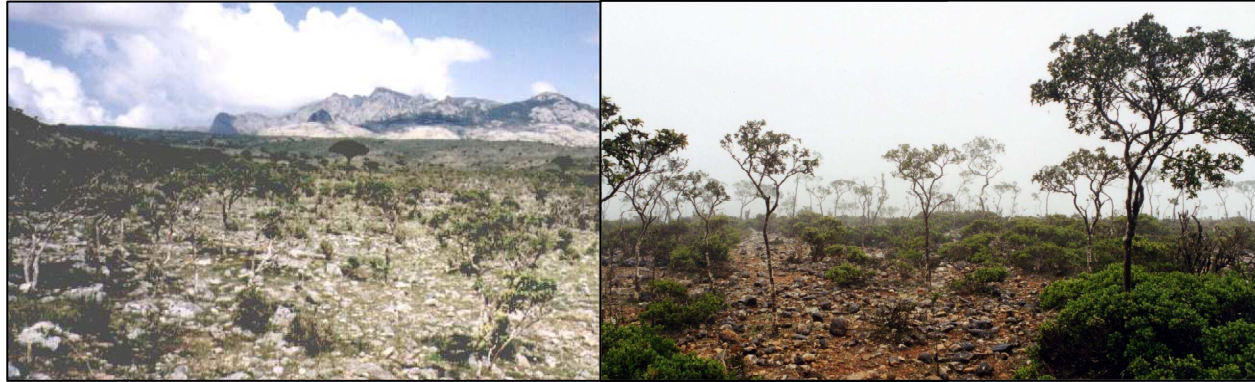
The perennial vegetation is rather scanty, consisting of individual stunted shrubs of *Lycium sokotranum*, *Solanum incanum*, *Croton socotranus*, *Euphorbia astemperi*, *Cryptolepis intricata*, *Withania* spp., *Aloe perryi*, *Kalanchoe farinacea*, etc.



LCC Label: Short Grassland With Shrubs; Major
Landclass: Level Land, Plateau; Slopeclass: Gently
 Undulating to Undulating;
Lithology: Calcareous rock; Altitude: 300 - 1000 m

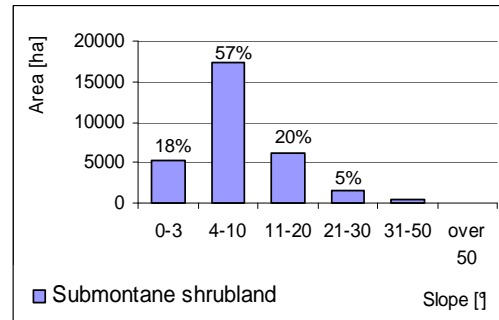
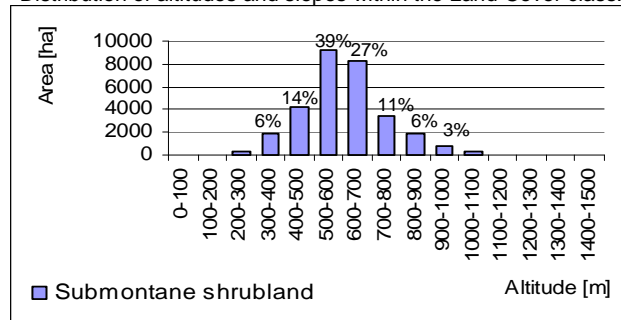
LCC Level: A6A10B4C1E5F2F6F10G3-B13-
 L12L6M230P9

(15) Submontane shrubland

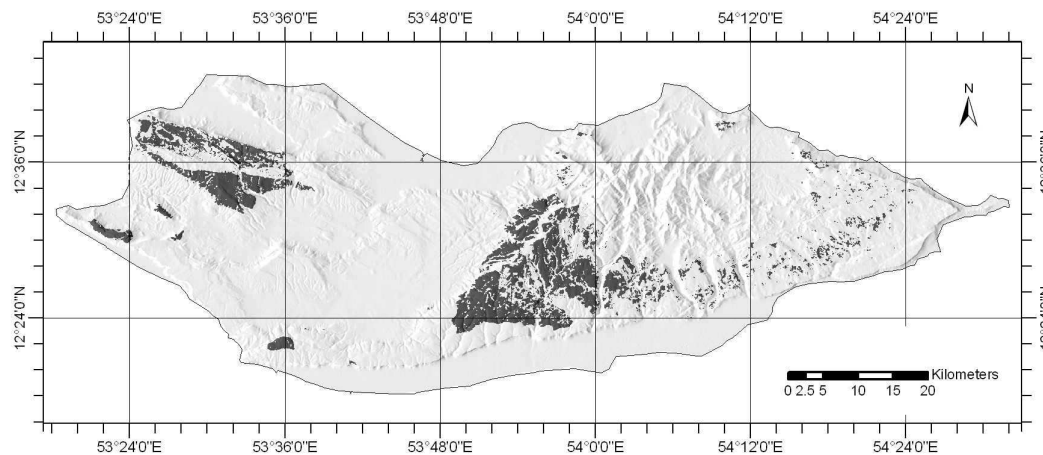


Own description: Semi-deciduous shrubland in the 3rd altitud. Veg. Zone, prevailingly on calcerous parent rock. Confined to summits of higher limestone plateaus. In central part it refers to Diksam, Shibehon and Khod'olhel, in the west it is the question of less exposed parts of Ma'aleh.

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



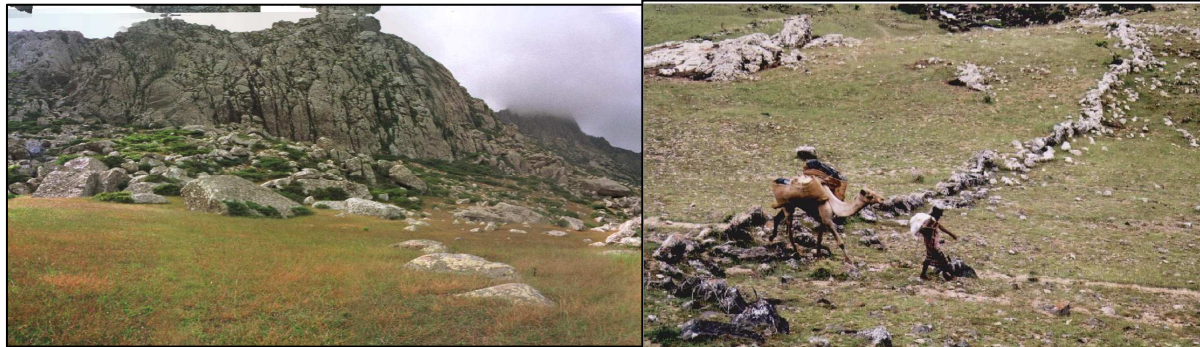
The woody vegetation is dominated by *Buxanthus pedicellatus* and *Croton socotranus*; emergent trees of *Dracaena cinnabari* occur. The shrub layer consist of many other species such as *Lycium sokotranum*, *Jatropha uncostata*, *Cryptolepis intricata*, *Ochradenus socotranus*, *Euryops arabicus*, *Trichocalyx* spp., *Kalanchoe farinacea*, *Cissus hamaderoensis*, *Withania* spp., *Gnidia socotrana*, perennial *Aloe perryi* in higher parts also *Punica protopunica*, *Euphorbia socotrana*, etc.



LCC Label: Semi-Deciduous ((70-60) - 40%) Medium High Shrubland With Shrub Emergents; Major Landclass: Steep Land, High-Gradient Hill; Lithology: Calcareous rock; Altitude: 400 - 1000 m

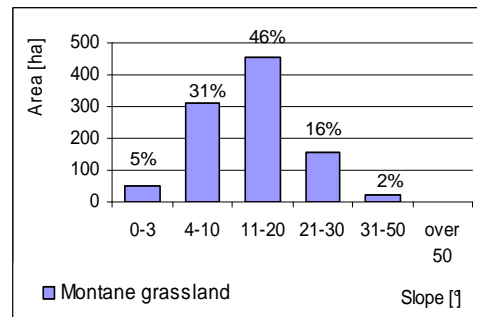
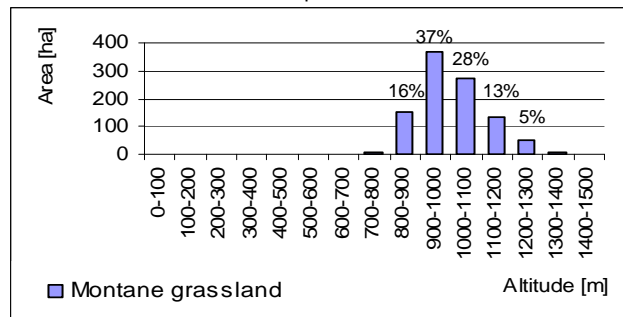
LCC Level:
A4A11B3C1D1E2F2F6F10G3-
A12B9E4-L32M230P9

(16) Montane grassland

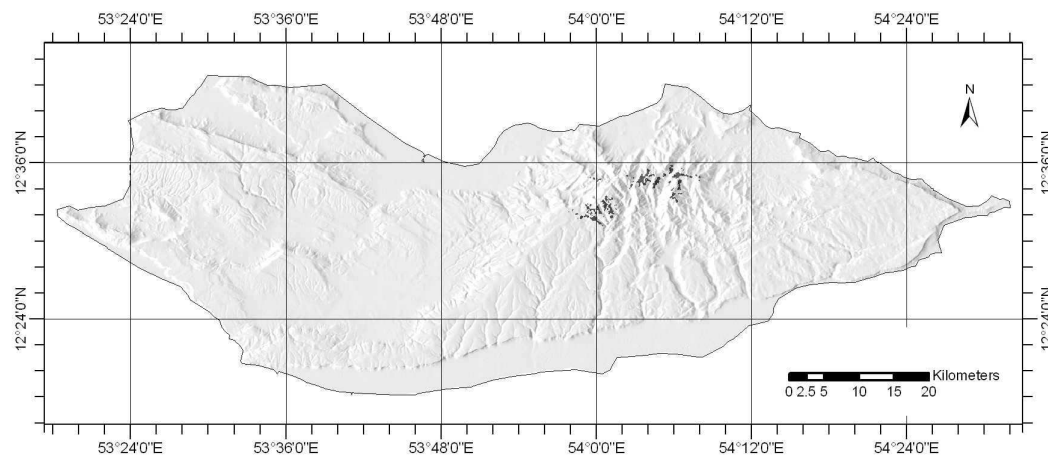


Own description: Mountain grassland of the 4th and 5th altitudinal vegetation zone, usually without shrubs; often presence of granodiorit rocks and stones. Confined to gentle slopes of the Haggeher Mts., generally above the height of 800m. It is the first of the three truly montane landcover classes that has been recognised on Socotra.

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



The montaneous grasslands are to a large extent composed of *Themeda quadrivalvis*, *Hyparhenia hirta* and *Arthraxon lancifolius* and herbs such as *Craterostigma pumilum*, *Helichrysum balfourii*, *Anagalis arvensis*, etc.; isolated shrubs also occur (e.g. *Rhus thyrsoiflora*, *Allophylus rubifolius*, *Euryops arabicus*, *Cocculus balfourii* etc.)



LCC Label: Continuous Open ((70-60) - 40%) Short Grassland; Major Landclass: Sloping Land, Slopeclass: Hilly;
 Lithology: Igneous plutonic rock - Granodiorite; Soils: Soil Surface, Stony (5 - 40 %), Subsurface: Ferralsols;
 Climate: Subtropics Winter Rainfall - Moist semi-arid;
 Altitude: 1000 -1500 m; Erosion: Water Erosion – Rill.

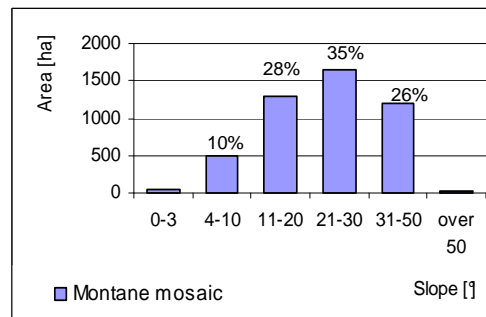
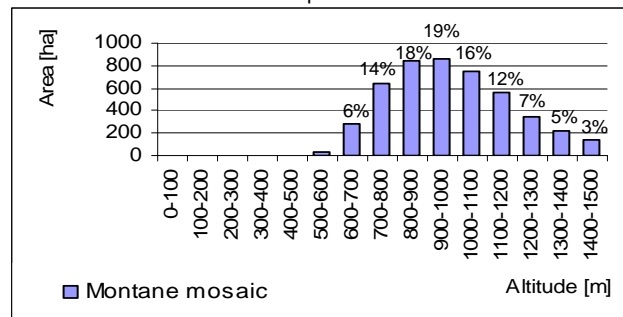
LCC Level: A6A11B4C1-A12B13-L2L8M112N2N4N1109O3O12P10 Q7

(17) Montane mosaic

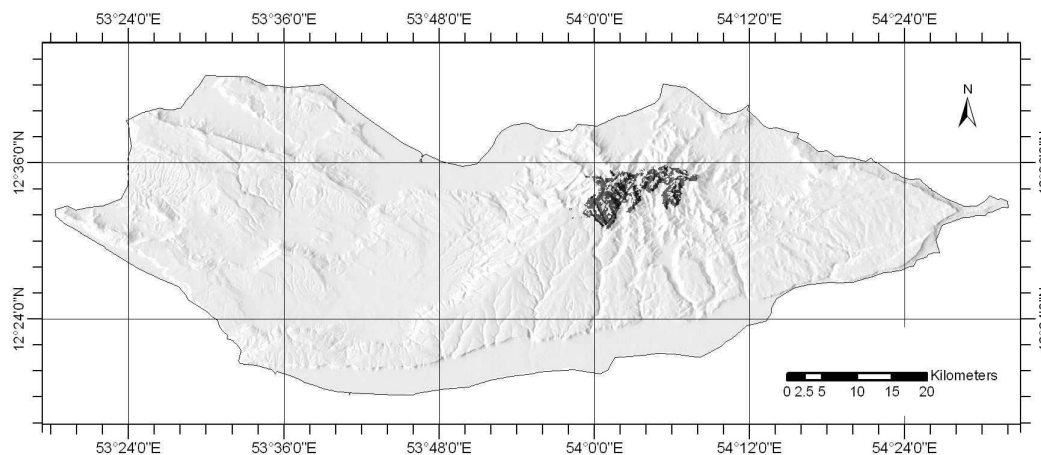


Own description: Mosaic of the fragmented biotopes of the 4/5th altit. veg. zones - including woodlands and dwarf to high shrublands. The most spread montaneous class on the island comprised of rather small but dense patches of diverse bushes and thickets of various heights,

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



Composed by trees such as *Pittosporum viridiflorum*, *Dracaena cinnabari*, *Spiniluma discolor*, *Euphorbia socotrana*, *Euclea divinorum*, *Sideroxylon fimbriatum* and *Commiphora planifrons* and by shrubs such as *Croton sulcifructus*, *Cephalocroton socotranus*, *Dirachma socotrana*, *Pulicaria lanata*, *Carphalea obovata*, *Hibiscus scottii*, *Rhus thyriflora*, *Allophylus rubifolius*, *Osyris quadripartita*, *Clerodendrum galeatum* etc. In addition there are shrubs such as *Hypericum scopulorum*, *Cocculus balfourii*, *Euryops arabicus*, *Graderia fruticosa*, *Ruellia insignis*, *Coelocarpum haggierensis* and *Vernonia unicata*.



LCC Label: Semi-Deciduous Fragmented (Striped) ((70-60) - 40%)
Woodland With Sparse Medium High Shrubs; Major Landclass:
Steep Land, High-Gradient Mountain; Climate: Subtropics Winter
Rainfall - Dry semi-arid; Altitude: 1000 -1500 m; Erosion:
Water Erosion - Rill; Floristic Aspect: Hypericum, Euphorbia,
Pittosporum, etc / ; Semi-Deciduous Open (40 - (20-10)%) Woody
Fragmented (Striped) Vegetation With Medium High Emergents.

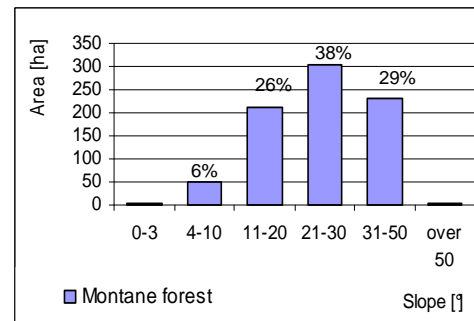
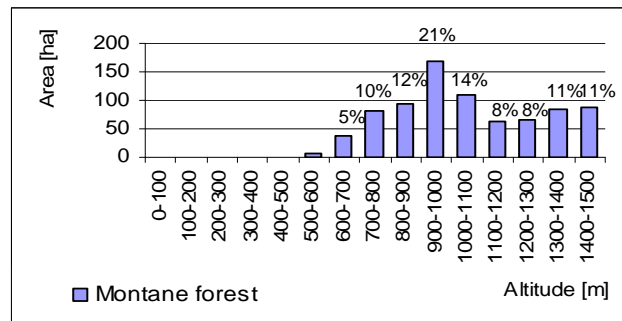
LCC Level: A3A11B2C2D1E2F2F6F10G3-A12B7C4E4G9-
L31O3O11P10Q7Zt17 / A1A11B1C2D1E2F2F5F10G2-
A13C4E4G6

(18) Montane forest

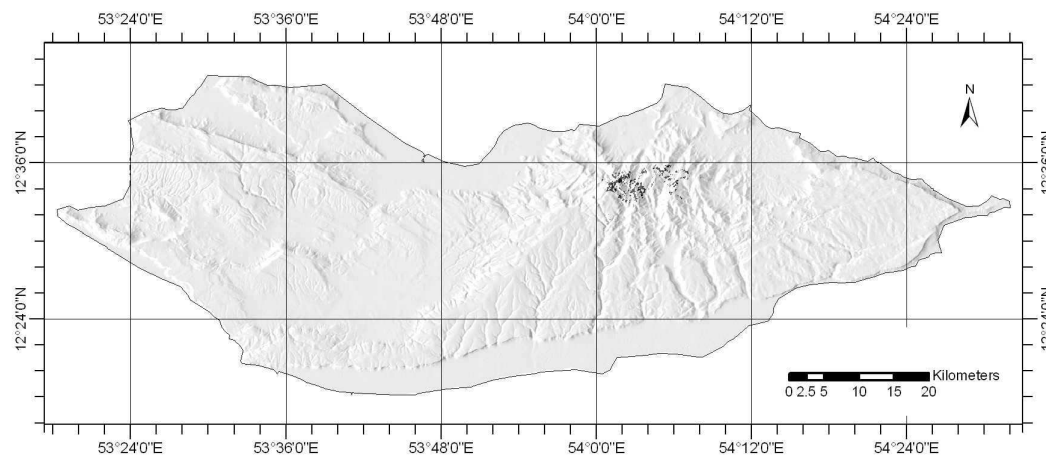


Own description: the last and the least class of the three montaneous land-cover classes. It occurs at the highest locations of Haggeher Mts., particularly in the western part – Bithagger (Scand), small patches may occur elsewhere

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



The tree layer (higher than [4]5m and with canopy closure at least 30%) is to a large extent composed of *Pittosporum viridiflorum*, *Dracaena cinnabari*, *Spiniluma discolor*, *Euphorbia socotrana*, *Euclea divinorum* and *Sideroxylon fimbriatum*. The shrub layer is formed by *Croton sulcifructus*, *Cephalocroton socotranus*, *Carphalea obovata*, *Hibiscus scottii*, *Rhus thyriflora*, *Allophylus rubifolius*, *Osyris quadripartita*, *Clerodendrum galeatum* etc.



LCC Label: Broadleaved Evergreen Fragmented (Cellular) ((70-60) - 40%) Woodland; Lithology: Igneous plutonic rock - Granite; Soils: Soil Surface, Stony (5 - 40 %), Subsurface: Ferralsols; Climate: Subtropics Winter Rainfall - Moist semi-arid; Altitude: 800 -1500 m; Erosion: Water Erosion - Gully /; Closed Medium High Shrubland (Thicket).

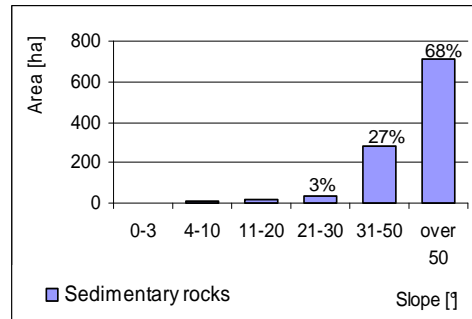
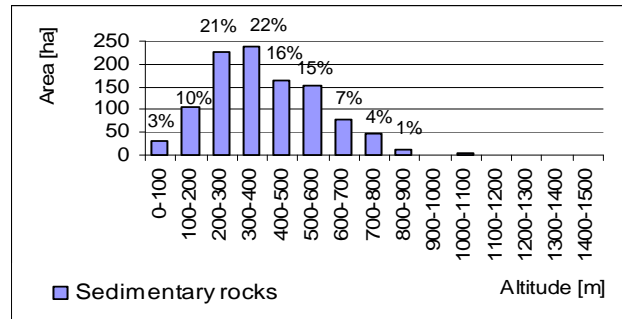
LCC Level: A3A11B2C2D1E1-A12B6C5-M111N2N4N1109O3O12P10Q8 / A4A10B3-B9

(19) Sedimentary rocks

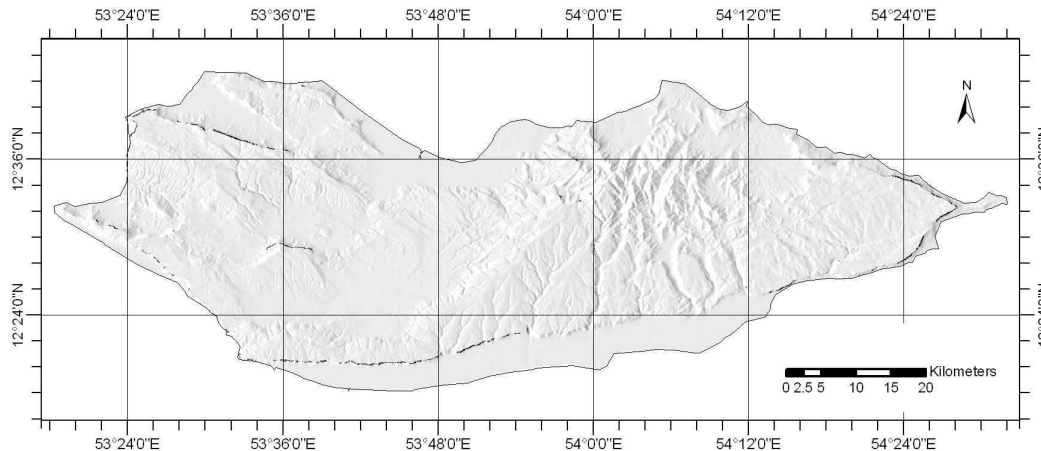


Own description: Larger surfaces of the rocks, reefs and escarpments delineated by SRTM-DEM and GIS geological map. Most of the class is formed by long cliffs and escarpments separating limestone plateaus from coastal (and inland) plains.

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



The vegetation of sedimentary rocks is characterised by such species as *Boswellia dioscorides*, *Boswellia bullata*, *Boswellia popoviana*, *Boswellia nana*, *Dorstenia gigas*, *Adenium obesum* ssp. *sokotranum*, occasionally also by *Dracaena cinnabari* and *Jatropha unicostata*.



LCC Label: Bare Rock And/Or Coarse Fragments; Major Landclass: Steep Land, High-Gradient Escarpment Zone, Slopeclass: Steeply Dissected to Mountainous; Lithology: Calcareous rock - Algal/reefal limestone; Altitude: 100 - 900 m

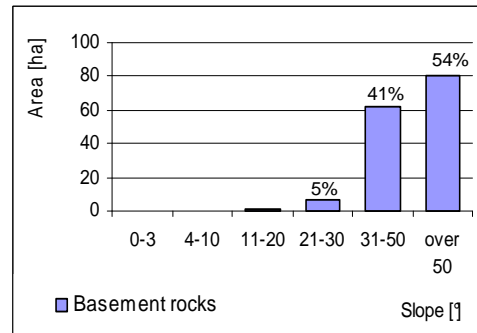
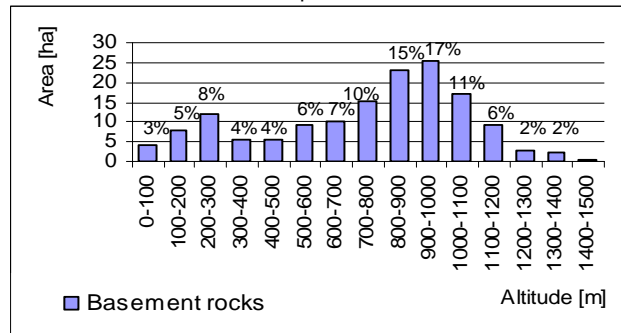
LCC Level: A3-L33L9M235P9

(20) Basement rocks

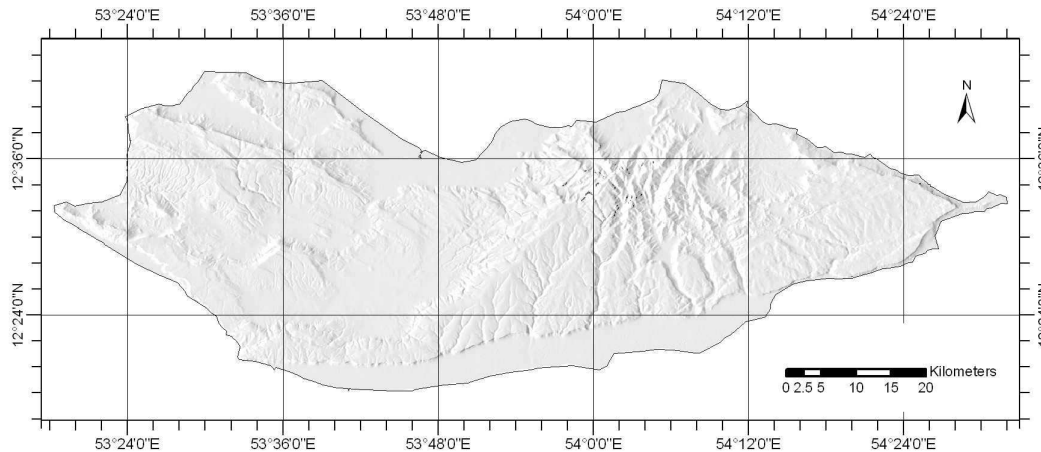


Own description: Larger surfaces of the rocks, reefs and escarpments delineated by SRTM-DEM and GIS geological map including both igneous and metamorphic rocks. It occurs in form of small patches only in central Haggeher Mts.

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



The higher forms of flora, are restricted to the occasional fissures, where succulents such as *Kalanchoe farinacea*, *K. rotundifolia*, *Aloe perryi*, and some herbs such as *Exacum affine*, *E. caeruleum* and *Begonia socotrana* find a foothold. Habrová (2004) in addition indicates *Dorstenia gigas*, *Adenium obesum* ssp. *sokotranum*, occasionally juveniles of *Dracaena cinnabari* and cushion vegetation such as *Helichrysum rosulatum*, *H. aciculare*, *Nirarathamnos asarifolius*, *Hemicrambe fruticosa*, etc.



LCC Label: Bare Rock(s); Major Landclass: Steep Land, High-Gradient Mountain, Slopeclass: Steeply Dissected to Mountainous; Lithology: Igneous rock; Altitude: 500 -1500 m

LCC Level: A3-A7-L31L9M1P10