THE PHYSICAL GEOGRAPHY OF THE MALTESE ISLANDS

-a brief overview-

The Maltese archipelago, occupying an area of approximately 315km² and situated in central Mediterranean, consists of the inhabited islands of Malta, Gozo and a number of islets and rocks. The Maltese Islands are mainly composed of limestone (Upper Coralline Limestone, Green Sand, Blue Clay, Globigerina Limestone and Lower Coralline Limestone) and were formed during the Tertiary Period of the Caenozoic Era between the Oligocene and Miocene Epoch (about 25 million years ago) (see book: Geography of the Maltese Islands, page 33-35).

Maltese soils are young with little horizon development and are very similar to the parent rocks. There are no mountains, streams or lakes, but only minor springs. Main geomorphologic features include limestone plateau, hillsides covered with clay taluses (slopes), gently rolling limestone plains and steep sea-cliffs on the western side of the Islands. The islands have a number of valleys which drain runoff during the wet seasons and are almost completely dry during the summer months. The average annual rainfall is approximately 530mm of which some 85% falls during the period of October to March. The climate of the Maltese Islands is sunny and quite windy.

Natural water resources depend on percolating rainwater which collects in limestone aquifers (Ta’ Kandja for example). Flora and Fauna in the Maltese Islands are very rich with over 2,000 species of plants and more than 3,000 species of animals. A large number of these species are endemic (found only in the Maltese Islands). The main ecosystems are maquis, steppe and garrigue. Minor ones includes pathes of woodland, coastal communities, sand dunes, freshwater communities and rupestral communities and even those of caves.

Human impact in the Maltese Islands is signification. The population density is 1,140 per km² (Malta is in the top five country list worldwide with the highest population density). Some 38% of the land area is cultivated and approximately 16% is built up.

Environmental problems include the increasing rate of soil erosion, quarrying, waste disposal, high levels of chlorides and nitrates in the water supply, the loss of habitats and wildlife and the rational use of land.

[This information is adapted from the Paper: Physical Geography and Ecology of the Maltese Islands- A Brief Overview written by Patrick J. Schembri. Department of Biology, University of Malta, Msida.]
Ecology of the Maltese Islands

Despite the limited size of the Islands the biological richness is quite considerable. The scarcity of fresh water and Mediterranean type of climate has left an imprint on the ways of how flora and fauna have adapted to living on the Islands. The major communities mentioned previously are:

**Maquis:** This is a scrub community generally characterized by a dense undergrowth of shrubs and trees. *Olive, Lentisk, Yellow Germander, Carob, Bear’s Breeches, White Hedge nettle and the Mediterranean Honeysuckle mainly dominate this shrub area.*

**Steppe:** Steppic grasslands in the Maltese islands are widespread and result from the degradation of the Maquis and Gariggue ecosystems mainly due to overgrazing (goats are capable of cropping plants very close to their base thus destroying them and are also able to chew and eat spiny xerophytic vegetation) and soil erosion (due to the occasional heavy downpours of rain).

*Such communities are dominated by grasses, umbellifers such as the Fennel, thistles and geophytes. Steppic communities can also grow on clay slopes and are dominated by the Esparto grass, the berad grass can also be found. Generally the more degraded steppes are characterized by grasses.*

**Garrigue:** stretches of rocky karstic ground with characteristic karst depressions and scattered pockets of soil that is trapped within the eroded limestone surface. With shallow or no soil at all low lying shrubs dominate. These shrubs can survive harsh temperature extremes and lack of water.

*The many herbaceous and aromatic species include the Mediterranean Thyme, Yellow Kidney Vetch, Olive leaved Germander, the Mediterranean Heath and Maltese Spurge.*

The minor communities are:

**Woodland:** Aleppo Pine and Holm Oak mainly dominates this kind of vegetation. The woodlands do not survive today. Different species of frogs exist in this place. Buskett is the popular semi natural woodland. The other popular trees of this place are Lentisk, Olive, Carob and Buckthorn.
**Rupestral Communities:** Flora and fauna found at cliff coastal areas. Shrubs are the popular part of this cliffs. The other indigenous species dominate like the Maltese Fleabane, Maltese Salt tree, Maltese Ever Lasting, Maltese Sea Lavender, Cory Shearwater and Blue Rock thrush.

**Coastal Communities:**

- **Saline marshlands** form an interface between the marine, freshwater and terrestrial environments. Maltese Coastal marshes are characterized by a muddy substratum on which a pool of brackish water collects in the wet season. During the dry season this water becomes progressively more brackish until it becomes hypersaline and finally disappears completely, leaving the marsh dry until the following wet seasons. Because of these harsh environmental conditions, saline marshlands support a highly specialized flora and fauna which is only found in this type of habitat.

- **Sand Dunes** form on sandy beaches. At present only very few persist and even these have been much degraded due mainly to human activities connect with beach development (for recreational use and touristic purposes). These ecosystems are thus amongst the rarest and most threatened of local ecosystems.

**Freshwater communities:** as rain water collects in natural hollows on the coralline Limestone stratum, temporary fresh water pools are formed. These are very transient and immediately dry up as soon as the dry season starts. Rare species are found in such assemblages making these fresh water pools particularly important ecologically and all the more highlighting their vulnerability. A number of freshwater pools are permanent, however these are very few and tiny. Nevertheless they are also highly important for the rare species that can be found. The water courses found in the Widien or valleys are also areas were freshwater species thrive, whilst a number of springs aid in supporting such a distinct community of freshwater fauna and flora.