

d.1.3 Amphibians

Several artificial ponds originating from the leachate, occur in southern and western parts of the proposed site. These water bodies, related with dry stream beds, create habitats for amphibians as frogs. As a result of field observations 3 frog species have been identified in the proposed site. These are ordered according to systematic classification as follows.

Family	Species
Bufonidae	<i>Bufo bufo</i> <i>Bufo vulgaris</i>
Hylidae	<i>Hyla arborea</i>

d.1.4 Reptiles

The proposed site abounds in reptiles. The reptile species identified in the site are classified in 3 groups as turtles, lizards and snakes. These are not dependent on the waste disposal site for their life cycles, but many of them adopted to the habitats particularly in macchie thickets, cultivated lands and ponds. Systematic classification of the reptile fauna is as follows.

Family	Species
Testudinidae	<i>Testudo graeca</i>
Emydidae	<i>Emys orbicularis</i>
Agamidae	<i>Agama stellio</i>
Lacertidae	<i>Ophisops elegans</i>
Chamaeleonidae	<i>Chamaeleon chamaeleon</i>
Colubridae	<i>Coluber jugularis</i> <i>Natrix natrix</i>
Typhlopidae	<i>Typhlops vermicularis</i>
Viperidae	<i>Vipera ursinii</i>

d.2 Flora

d.2.1 Floristic Aspect of the Proposed Site

In the course of the floristic field observations, in spring 1999, 71 plant taxa were identified in the proposed site. *Compositae* is the richest family in terms of species diversity among the plant families. *Graminae* and *Leguminosae* families have also high species diversity in comparison with general aspect.

Flora of the proposed site contains a high number of herbaceous taxa. The rate of this group is 87 % in total number. Annuals (*therophytes*) which have a rate of 58%, is the major group. Most of the taxa are widely distributed in terms of phytogeographical origins. Those were classified as "VR" (various regions) in the following systematic list. The rate of Mediterranean taxa (including *eastmedit.*) is 36 %. These characteristics are shown in Figure 13-30 to Figure 13-32.

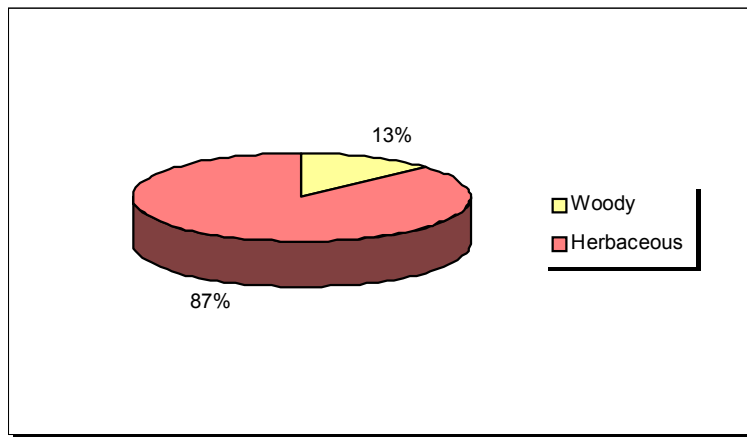


Figure 13-30: Percentage of Woody and Herbaceous Taxa Occur in the Proposed Site

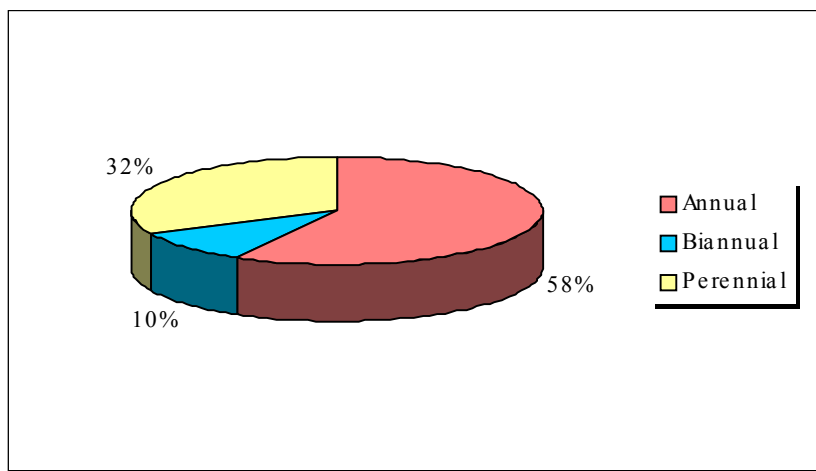


Figure 13-31: Percentage of Annual, Biannual and Perennial Taxa Occur in the Proposed Site

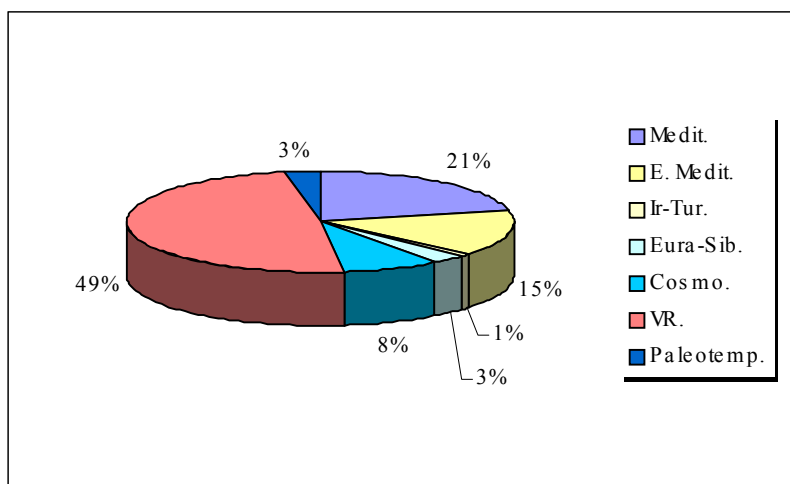


Figure 13-32: Percentage of Species and Subspecies Belonging to Various Phytogeographical Elements Occur in the Proposed Site

d.2.2 Taxonomic List of Vascular Plant Taxa Occur in Proposed Site (in Alphabetic Order)

ANACARDIACEAE

Pistacia terebinthus L. subsp. *palaestina* (Boiss.) Engler (Perennial, shrub, E.Medit)

BORAGINACEAE

Cynoglossum creticum Miller. (Biannual, weed, VR.)
Echium angustifolium Miller. (Perennial, weed, E.Medit)
Lithodora hispidula (Sm.) Griseb.(Perennial, shrub, E.Medit)

CAPPARACEAE

Capparis spinosa L. var. *spinosa* (Perennial, shrub, VR)

CARYOPHYLLACEAE

Silene colorata Poiret. (Annual, weed, VR.)

CHENOPODIACEAE

Chenopodium album L. (Annual, weed, VR.)

COMPOSITAE

Anthemis cotula L. (Annual, weed, VR.)
Carthamus dentatus Vahl. (Annual, weed, VR.)
Centaurea solstitialis L. (Annual, weed, E.Medit.)
Cichorium intybus (Perennial, weed, Cosmo.)
Conyza canadensis (L.) Cronquist (Annual, weed, PR.)
Crepis sancta (L.) Bobcock. (Annual, weed, VR.)
Crupina crupinastrum. (Annual, weed, VR.)
Filago pyramidata L. (Annual, weed, VR.)
Lactuca serriola L. (Biannual, weed, Euro-Sib.)
Pallenis spinosa (L.) Cass.(Annual, weed, Medit.)
Picnomon acarna (L.) Cass. (Annual, weed, Medit.)
Scolymus hispanicus L. (Biannual, weed, Medit.)
Silybum marianum (L.) Gaertner. (Biannual, weed, Medit.)
Sonchus oleraceus L. (Annual, weed, VR.).
Xanthium spinosum L. (Annual, weed, VR.)

CONVOLVULACEAE

Convolvulus arvensis L. (Perennial, weed, Cosmo.)

CRUCIFERAE

Capsella bursa-pastoris (L.) Medik. (Annual, weed, Cosmo.)
Sinapis arvensis L.(Annual, weed, VR.)
Sisymbrium officinale (L.) Scop var. *leiocarpum* DC. (Annual, weed, Paleotemp.)

EUPHORBIACEAE

Andrachne telephoides L. (Perennial, weed, VR.)
Mercurialis annua L. (Annual, weed, VR.)

FAGACEAE

Quercus coccifera L. (Perennial, shrub, Medit)

GERANIACEAE

Erodium malacoides (L.) L. Herit. (Annual, weed, Medit.)

GRAMINEAE

Avena sterilis (L.) (Annual, weed, VR.)

Dactylis glomerata (L.) (Perennial, weed, Euro-Sib.)

Hyparrhenia hirta (L.) Stapf. (Perennial, weed, VR.)

Lolium temulentum (L.) (Annual, weed, Cosmo.)

Polypogon monspeliensis (L.) Desf. (Annual, weed, VR.)

Piptatherum miliaceum (L.) Cosson subsp. *miliaceum* (Perennial, weed, Medit.)

Phaleum exeratum Hochst. ex Griseb (Annual, weed, VR.)

JUNCACEAE

Juncus bufonius (L.) (Annual, weed, Cosmo.)

LABIATE

Ajuga chamaeipys (L.) Schreber subsp. *palaestina* (Boiss.) (Biannual, weed, E.Medit.)

Micomeria myrtifolia Boiss. et Hohen (Perennial, shrub, E.Medit.)

Salvia viridis (L.) (Annual, weed, Medit.)

LEGUMINOSAE

Calycotome villosa (Poiret) Link (Perennial, shrub, Medit.)

Lathyrus annus (L.) (Annual, weed, Medit.)

Onobrychis caput-galli (L.) Lam. (Annual, weed, Medit.)

Trifolium angustifolium. (Annual, weed, VR.)

Trifolium lappaceum (L.) (Annual, weed, Medit.)

Trifolium campestre Schrep. (Annual, weed, VR.)

Trifolium tomentosum (L.) (Annual, weed, VR.)

Anthyllis tetraphylla (L.) (Annual, weed, Medit.)

LILIACEAE

Asparagus acutifolius (L.) (Perennial, shrub, Medit.)

Asphodellus aestivus Brof. (Perennial, weed, Medit.)

MALVACEAE

Malva paviflora (L.) (Annual, weed, VR.)

MYRTACEAE

Myrtus communis (L.) subsp. *comminus* (Perennial, shrub, VR.)

PAPAVERACEA

Fumaria officinalis L. (Annual, weed, VR.)

Papaver rhoeas L. (Annual, weed, VR.)

Papaver hybridum L. (Annual, weed, Paleotemp.)

PLANTAGINACEAE

Plantago afra L. (Annual, weed, VR.)

Plantago lanceolata L. (Perennial, weed, VR.)

POLYGONACEAE

Polygonum aviculare L. (Annual, weed, Cosmo.)

Rumex conglomeratus Murr. (Perennial, weed, VR.)

PRIMULACEAE

Anagallis arvensis L. (Annual, weed, VR.)

RESEDACEAE

Reseda lutea L. (Perennial, weed, VR.)

RHAMNACEAE

Rhamnus hirtellus Boiss. (Perennial, Shrub, Ir-Tur.)

ROSACEAE

Sanguisorba minor Scop. (Perennial, weed, VR.)

SCROPHULARICEAE

Scrophularia canina L. (Perennial, weed, E.Medit.)

Verbascum sinuatum L. Biannual, weed, E.Medit.)

TYPHACEAE

Typha angustifolia L. (Perennial, weed, VR.)

URTICACEAE

Urtica pilulifera (Annual, weed, VR.)

UMBELLIFERAE

Ainsworthia trachcarpa Boiss. (Annual, weed, E.Medit.)

Eryngium creticum Lam. (Biannual, weed, E.Medit.)

Tordylium syriacum L. (Annual, weed, E.Medit.)

Abbreviations:

E.Medit.	: East Mediterranean element	Medit.	: Mediterranean element
Ir-Tur.	: Irano-Turanien element	Euro-Sib.	: Euro-Siberian element
Paleotemp.	: Paleotemperate	Cosmo.	: Cosmopolit
VR.	: Various regions		

d.2.3 Vegetation

The proposed site subjected to waste disposal, and vicinity have various type of vegetation types (Figure 13-33). Sclerophyllous forest dominated by *Quercus coccifera* represents the natural vegetation in the proposed site. These vegetation was degraded by human influences. Antropogenic activities practised in the area are; waste disposal, excavation for gravel supply, cultivation and grazing. Natural vegetation was replaced by different plant communities indicating habitat degradation dynamics.

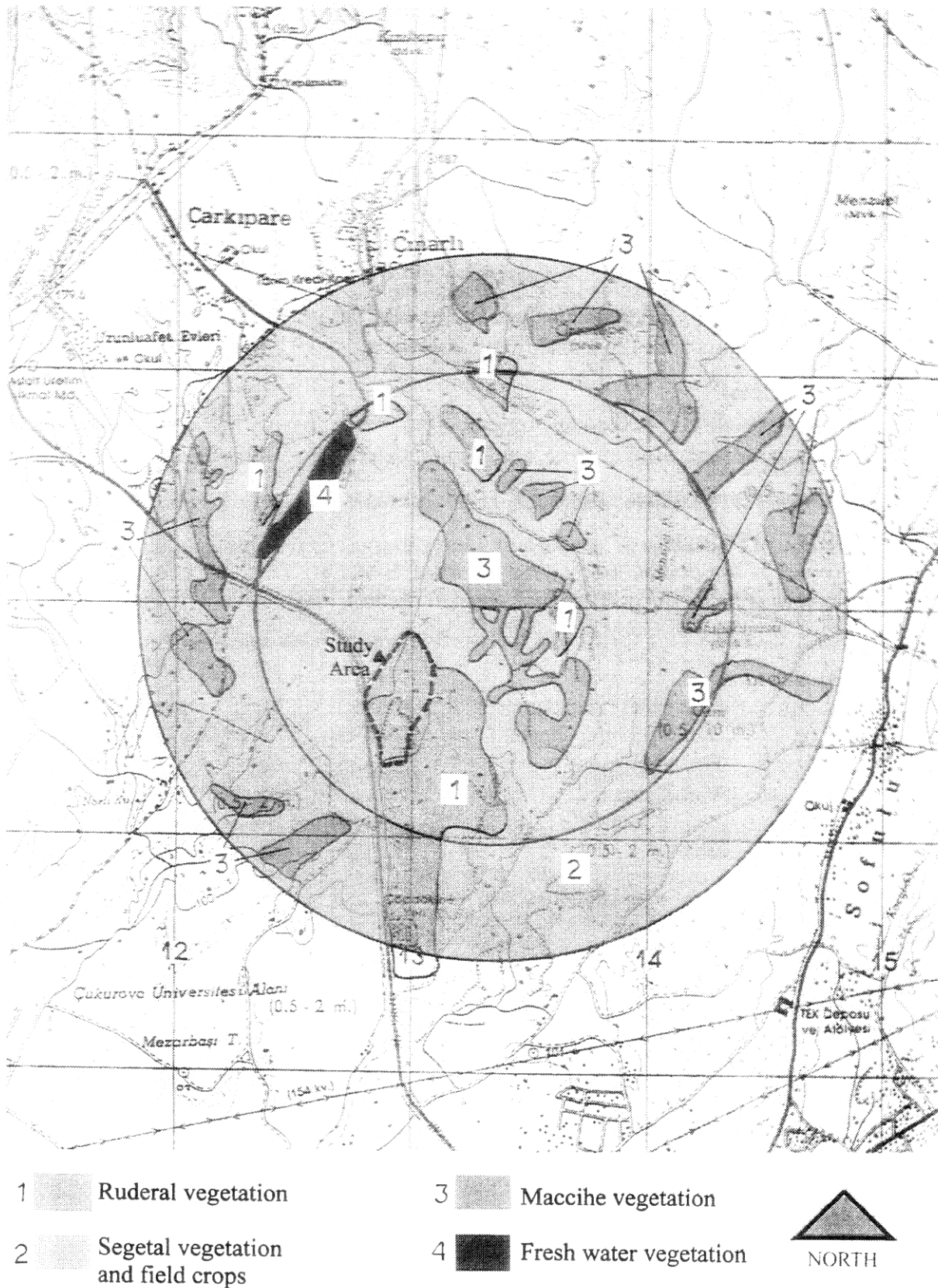


Figure 13-33: Vegetation Types of Adana-Sofulu Waste Dumping Site and the Vicinity

Degraded macchie has a scarce distribution on the slopes and dry streambeds. Nitrophytes form a dense and uniform vegetation in the waste dumping site. Cultivation is a common land use type around the proposed site. Grain fields occupy a large area. At the field margins and particularly in fallow fields segetal communities, are common. The excavation site occurs as an extreme man-made habitat. In this chapter, the principal vegetation types are indicated briefly on the base of species of particular interest for each community.

d.2.4 Macchie

Degradation stage of macchie occurs in dry stream beds and slopes. This stage is characterised by open shrub communities. Common species are; *Quercus coccifera*, *Myrtus communis*, *Pistacia lentiscus*, *Asparagus acutifolius*, *Rhamnus hirtellus*, *Lithodora hispidula*, *Calicotome villosa*, *Hypparhenia hirta*, *Asphodellus aestivus* and *Dactylis glomerata* (Figure 13-34).



Figure 13-34: Degraded macchie formation has a scarce distribution in the marginal lands in the proposed site

d.2.5 Segetal Vegetation

A great number of weeds are common at the field margins and in the fallow fields (Figure 13-35). The characteristic elements of this vegetation are *Carduus pycnocephalus* and *Silybum marianum*. *Avena sterilis*, *Sinapis arvensis*, *Trifolium campestre*, *Papaver roheas*, *Convolvulus arvensis*, *Plantago lanceolata*, *Plantago afra*, *Silene clorata*, *Cynoglossum creticum*, *Xanthium spinosum*, *Erodium malacoides*, *Lactuca serriola*, *Aintsworthia trachycarpa*, *Anagallis arvensis* and *Anthyllis tetraphylla* also have wide distribution in the cultivated land.