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COUNTRY PROFILE: TURKEY

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KEY-WORDS
CONSERVATION LEGISLATION, ECOSYSTEMS, AGROECOSYSTEMS, PRINCIPAL TAXA, BIOLOGICAL COLLECTIONS

MOTS-CLES
Legislation enviROnnementale, ECOSYSTÈMES, AGROECOSYSTÈMES, TAXA PRICIPAUX, COLLECTIONS BIOLOGIQUES

LIST OF RELEVANT GOVERNMENTAL AND NON-GOVERNMENTAL ORGANIZATIONS

The followng is a tentative list of Governmental and Non-Governmental Organizations involved in any aspects of the study, cultivation, sustainable use, conservation of plant genetic resources used or of potential use in agriculture, forestry, horticulture (including ornamentals) and habitat conservation and restoration are as follows: (Note: This is by no means a comprehensive list)

(a) Ministry of Environment
(b) Ministry of Agriculture and Rural Affairs
(c) Ministry of Forestry
(d) Aegean Agricultural Research Institute (AARI)
(e) Medicinal and Aromatic Plant and Drug Research Centre (TBAM)
(f) Export Promotion Centre of Turkey (IGEME)
(g) Herbarium of the Faculty of Pharmacy of Istanbul University (ISTE)
(h) Society for the Protection of Nature (DHKD)
(i) Herbarium of Gazi University (GAZI)
(j) The Turkish Foundation for Combating Soil Erosion, for Reforestation and the Protection of Natural Habitats (TEMA)
(k) Biodiversity Information Research Unit (BIEN)
(l) Environment Foundation of Turkey
(m) Turkish Society for the Protection of Nature and its Resources (TTDK)
(n) The Authority for the Protection of Special Areas
(o) General Directorate of the Preservation of Natural and Cultural Heritage
(p) The Department of Natural Parks

Detailed information on some of the above institutions is given in Annexe 1.

REGIONAL AND OTHER INTERNATIONAL LINKS

(a) Turkish National Plant Genetic Resources Programme is a member of European Cooperative Programme for conservation and utilization of Plant Genetic Resources (ECP/GR); West Asia and North Africa Plant Genetic Resources Network (WANANET); Underutilized Mediterranean Species (UMS) Network; Neglected Mediterranean Species for Landscape and Cultural Importance Network. Turkish scientists are members of various working groups operating within the above networks/programmes. Coordination activities are carried out by AARI.

(b) TEMA is the National Focal Point for RIOD (Réseau International d'ONG sur la Désertification); West Asian Focal Point for APMN (Asian Pacific Mountain Network), ICIMOD (International Center for Integrated Mountain Development); ICARDA (International Center for Agricultural Development in Dry Areas)

(c) UN Agencies: UN International Convension on Combating Desertification and Drought; FAO (UN Food and Agriculture Organization); UNIDO (UN Industrial Development Organization); UNEP (UN Environment Programme); UNDP (UN Development Programme)

(d) BEE (European Environmental Bureau)

(e) TBAM is National Point of Contact for APINMAP (Asian Pacific Information Network on Medicinal and Aromatic Plants); MEDUSA Network; Regional Representative of ICMAP (International Council for Medicinal and Aromatic Plants) for Central and South West Asia Region. For the last ten years, TBAM is acting as a UNIDO Training Centre on Industrial Utilization of Medicinal and Aromatic Plants.

CONSERVATION LEGISLATION

Turkey is a signatory of Bern Convention, CITES (Convention on the International Trade for Endangered Species of Fauna and Flora) and Convention on Biological Diversity (CBD). Turkish Government has published several regulations (Code of Conduct) on collection, conservation and utilization of plant genetic resources. A national plan for *in situ* conservation of plants/crops is under way. A Master Plan for Environmental Protection is also being prepared.

The National Plant Genetic Resources Research Project was implemented by the then Ministry of Agriculture, Forestry and Rural Affairs between 1964 and 1973. The project was executed by FAO. In 1973, the project acquired a regional character with the participation of Iran, Iraq, Syria, Afghanistan and Pakistan (REM/031-IBPGR Project). Within the framework of the project which was reorganized in 1978, AARI was assigned as the focal point of the national programme.

There are special conservation measures for geophytes in Turkey. A regulation for 'Collection, cultivation and export of native bulbs' which came into force in 1989 with amendments in 1991 and 1995 is in harmony with CITES in content and terminology. The regulation classifies natural bulbs as follows: (i) freely exported, (ii) exported under quota, and (iii) exportation banned. The lists of plants in each category are published each year in the Official Gazette under the title 'List of Natural Bulbs for Export'. The lists specify the species, plant part and quota to be exported. Decisions are taken by a Technical Committee comprising members assigned by the following organisations: TÜGEM (General Directorate of Agricultural Production and Development at the Ministry of Agriculture and Rural Affairs) (3), CITES (3), Ministry of Environment (1), Ministry of Forestry (1), Undersecretariat of Foreign Trade (1) and IGEME (1).

There is special legislation for Natural Parks, Nature Preserves and Protected Areas. Several projects on the conservation of sand dunes, important plant sites, Seed Collection Project of Turkish Endemics and *in situ* conservation are under way.

The *in situ* project is a GEF (Global Environment Facility)-funded international programme. The project was designed to protect wild relatives of several woody and non-woody crop plants such as wheat (*Triticum* spp.), barley (*Hordeum* spp.), lentil (*Lens* spp.), chickpea (*Cicer* spp.), Pear (*Pyrus* spp.), apple (*Malus* spp.), cherry (*Prunus* spp.), walnut (*Juglans* sp.), pistachio (*Pistachio* spp.) and chestnut (*Castanea* spp.), and several important forest tree species such as pines (*Pinus* spp.), firs (*Abies* spp.) and Cedar (*Cedrus libani*) in assigned gene management zones (GMZ) in Turkey. The project is the first of its kind in the *in situ* world to protect the genetic variability and populations of both woody and non-woody wild crop relatives from an integrated multispecies approach on a landscape basis. GMZs are large areas carefully selected and managed for the purpose of maintaining an array of wild relatives in their natural environment. Important GMZs are located in Kaz Mountain near Edremit, Bal›kesir in Aegean Turkey; in the Ceylanp›nar State Farm in South-Eastern Turkey; Bolkar Mountain in South-Central Turkey.

The seed collection project of Turkish endemics has been coordinated by Prof.Tuna Ekim of Gazi University in Ankara under the joint sponsorship of TUBITAK (Turkish Scientific and Technical Research Council) and the State Planning Organization (DPT). It involves the work of 28 botanists from 12 universities and several seed banks. The project which has been implemented since 1992 aims at collecting seeds from endemic taxa in Turkey and depositing them at seed banks, particularly in Menemen-Izmir, in Turkey. Seeds are also given to Karaca Arboretum in Yalova for propagation. The lever of endemism is quite high in the flora of Turkey: over 30% of the 10 500 vascular plant taxa fund Turkey are endemic to the country. The project has been successful in collecting seeds from over 50% of the endemic taxa. The project has resulted in the collection of many very rare species, and field observations have given most recent and reliable information on the status, population richness and distribution of many endemic species. Plant specimens are deposited in herbaria of the universities. Another fringe benefit of this project has been the characterization of many species new for science.

A 'National Plan for the *in situ* Conservation of Plant Diversity in Turkey' has been prepared by Z.Kaya, E.Kün and A.Güner (1997). The plan is expected to be implemented by the Ministry of Environment with funds from the World Bank.

At a workshop held in March 1997 in Bolu, Turkish plant taxonomists decided unanimously to recommend TUBITAK to establish a Plant Diversity Working Group to coordinate and fund research projects in this field. An important project for this Working Group has been recommended to be the preparation of an Illustrated Flora of Turkey in Turkish and English.

A Biodiversity Information Research Unit (BIEN) has been in existence in TUBITAK since last year. The Unit has so far supported three ongoing projects for the preparation of databases that are listed under databases.

A Red Data Book of Turkey was published in 1989 indicating the status of rare and thtreatened plants of Turkey according to the IUCN categories. A summary of the numbers of species in the different categories is given in Table 1.

Recently, Prof.Adil Güner of Abant Izzet Baysal University in Bolu, Turkey has evaluated the vascular plants of Turkey according to new IUCN categories as listed in Table 2.

In Turkey, there are 32 protected sites of which each cover 10 km^2 or more and are in IUCN Management Categories I-VIII. The total area protected is 5570 km^2 which comprises 0.71% of the country. A list of sites in Turkey identified as Centres of Plant Diversity and Endemism is given in Table 3.

Table 1: Plants Listed in the Red Data Book of Turkey*

Categories	Endemic	Non-endemic
Extinct (**Ex**)	8	4
Endangered (**E**)	46	60
Vulnerable (**V**)	183	205
Rare (**R**)	1701	1310
Indeterminate (**I**)	49	78
Insufficiently Known (**K**)	282	362
Out of Danger (**O**)	5	-
Not rare nor threatened (**Nt**)	798	-
Total	3072	2019

* T.Ekim, M.Koyuncu, S.Erik and R.‹larslan, *List of Rare, Threatened and Endemic Plants in Turkey Prepared According to IUCN Red Data Book Categories*, Turkish Association for Conservation of Nature and Natural Resources (Series No:18), Ankara (1989)

Table 2: List of Vascular Plants According to New IUCN Categories*

New IUCN Categories	Plant taxa
Not Evaluated (**NE=3D**)	0
Data Insufficient (**DD=3D**)	19
Lower Risk least concern (**LRlc=3D**)	432
Lower Risk near threatened (**LRnt=3D**)	94
Lower Risk conservation dependent (**LRcd=3D**)	9
Vulnerable (**VU=3D**)	6
Endangered (**EN=3D**)	0
Critically Endangered (**CR=3D**)	1
Extinct in the Wild (**EW=3D**)	0
Extinct (**EX=3D**)	3
Total	564

* A.Güner and J.Zielinski, The Conservation Status of the TurkishWoody Flora, *Proceedings of IDS (International Dendrology Society) Symposium on the Conservation Status of Temperate Trees, 30 Sept -1 Oct 1994*, University of Bonn, pp.41-52 (1996).

Table 3: List of Sites identified as Centres of Plant Diversity and Endemism in Turkey*

SWA12	Anti-Taurus Mountains and Upper Euphrates
SWA13	Tuz Gölü
SWA14	Mountains of South-east Turkey, North-west Iran and Northern Iraq
SWA15	Isaurian, Lycaonian and Cilician Taurus
SWA16	South-west Anatolia
SWA17	Levantine Uplands
SWA19	North-east Anatolia
SWA20	Uluda¤

* L.Boulos, A.G.Miller and R.R.Mill, Regional Overview: South West Asia and the Middle East. In: S.D.Davis, V.H.Heywood and A.C.Hamilton (eds), *Centres of Plant Diversity. A Guide and Strategy for Their Conservation.* Vol 1, IUCN (1994). pp. 293-308.

A list of known and estimated species of plants in different categories in the world and in Turkey is given in the following table. The list has been derived from that given in the Working Paper prepared by A.Güner for the Bolu Meeting in March 1997 (See above).

	World known	World estimated	Turkey known	Turkey estimated
Bacteria	4 000	3 000 000	?	?
Viruses	5 000	500 000	?	?
Microscopic algae	?	350 000???	?	?
Macroscopic algae	13 500	?	?	?
Fungi	70 000	1 500 000	700?	5 000?
Likens	17 000	20 000	650	>1000
Liverworts	9 000	10 000	144	250
Mosses	14 000	20 000	656	800
Pteridophytes	12 000	15 000	86	100
Gymnosperms	650	650	22	22
Flowering plants	250 000	300 000	8826	9500

CONSTRAINTS

According to AARI, the National Programme on Biodiversity has been organized in a systematic way including staff, training and travel funding and institutional strengthening capabilities. It is one of the good examples among the networks of which Turkey is a member state.

However, several respondents to our inquiry have indicated that lack of funds and facilities were among the general constraints encountered during the implementation of biodiversity projects.

PRINCIPAL AND CRITICAL ECOSYSTEMS AND AGROECOSYSTEMS UNDER EXAMINATION

Turkey is a large country covering an area of 779,452 sq.km supporting a population of 65 millions (est.1997). Turkey's total forest land occupies 20.2 million ha, while total range land covers 21 million ha. The country is faced with a significant threat of soil erosion, caused principally by overgrazing, wrong agricultural practices, fuelwood harvesting, etc. The efforts by the Ministry of Forestry are largely supported and a public awareness has been created by TEMA Foundation. TEMA volunteers are working on projects for combating erosion throughout Turkey. TEMA alone is contributing to 1100 ha of afforestation and reafforestation projects. TEMA is also contributing to the rehabilitation of 5600 ha of range sites. The Ministry of Forestry is planning to afforest 3000 sq.km per year during the next decade.

There are 32 national parks, 11 nature parks, 32 nature reserves and 54 nature monuments officially declared in Turkey. Altogether they cover a total area of 778 455.8 ha. (see Annexe 3)

DHKD, Herbarium of the Istanbul University Faculty of Pharmacy (ISTE) and Fauna and Flora International (FFI) is planning to implement at project titled 'Important Plant Sites of Turkey'. The group has identified 121 possible sites throughout Turkey for field work in order to study the flora of each site in depth for the preparation of local flora listings to be used in planning future conservation programmes. The list of these sites is annexed. (see Annexe 4)

As mentioned above, the *in-situ* Conservation Programme has identified several Gene Management Zones (GMZ) in Turkey. Kaz Mountain GMZs are in the Aegean region of Northwest Turkey and include elements of the Euro-Siberian, Mediterranean and Irano-Turanian flora. The major elements of these GMZs are *Castanea sativa* (Chestnut), *Prunus divaricata* (Plums), *Pinus nigra* subsp. *pallasiana* (Anatolian black pine), *Pinus brutia* (Turkish red pine) and *Abies equi-trojani* (Kazda¤› fir).

In Southern Turkey GMZs have been established in the Ceylanp›nar State Farm which includes Mediterranean and Irano-Turanian elements. These GMZs are considered gene centres for wild wheats (*Triticum dicoccoides, T.boeticum* and associated species of *Aegilops speltoides, A.crassa, A.squarrosa*), lentil (*Lens* spp.), chickpea (*Cicer* spp.) and barley (*Hordeum spontaneum*).

In the Bolkar Mountains forest in South-central Turkey which comprises additional forest flora of the Euro-Siberian, Irano-Turanian and coastal Mediterranean flora, GMZs have been established to protect wheat, lentil, medicinal and aromatic plants (e.g. *Lobaria* spp., *Cladonia* spp.), plum, apple and hazelnut (*Corylus* spp.), Southern populations of red and black pine, fir (*Abies cilicica*) and cedar (*Cedrus libani*).

Ministry of Environment is implementing environmental protection projects in Turkey such as that in Göksu Delta in Silifke, ‹çel.

PRINCIPAL TAXA AND END USE

Examples of the most important indigenous economic plants of Anatolia and adjacent territories are listed in Table 4. The table was partially derived from the list given in the book referenced under Table 4.

TABLE 4. EXAMPLES OF THE MOST IMPORTANT INDIGENOUS ECONOMIC PLANTS OF TURKEY AND ADJACENT TERRITORIES*

Food Plants	*Amygdalus communis, Beta vulgaris, Castanea sativa, Ceratonia siliqua, Cicer arietinum, Citrus* spp., *Corylus avellana, C.colurna, C.maxima, Cydonia vulgaris, Ficus carica, Hordeum* spp., *Juglans regia, Lens culinaris, Olea europaea, Phoenix dactylifera, Pistacia vera, Prunus armeniaca, P.avium, Punica granatum, Secale cereale, Trigonella foenum-graecum, Triticum* spp., *Vicia faba*
Fibre Plants	*Linum usitatissimum, Cannabis sativa*
Oil Plants	*Carthamus tinctorius, Linum usitatissimum, Olea europaea*
Gums and Resins	*Astragalus gummifer, Cistus creticus, Liquidambar orientalis, Pinus* spp., *Pistacia lentiscus*
Timber Trees	*Abies* spp., *Carpinus betulus, Castanea sativa, Cedrus libani, Cupressus sempervirens, Fagus orientalis, Juglans regia, Juniperus* spp., *Olea europaea, Pinus* spp., *Quercus* spp.
Dye Plants	*Alkanna tinctoria, Anchusa italica, Anthemis tinctoria, Arnebia densiflora, Asperula procumbens, Chrozophora tinctoria, Echium italicum, Isatis tinctoria, Rubia tinctoria*
Plants of Horticultural Value	*Allium* spp., *Anemone* spp., *Asparagus* spp., *Asphodeline* spp., *Asphodelus* spp., *Bellevalia* spp., *Chionodoxa* spp., *Colchicum* spp., *Cyclamen* spp., *Dionysia* spp., *Eranthis hyemalis, Fritillaria* spp., *Gagea* spp., *Galanthus* spp., *Gladiolus* spp., *Hyacinthella* spp., *Hyacinthus orientalis, Iris* spp., *Ixiolirion tataricum, Lilium* spp., *Muscari* spp., *Narcissus* spp., *Ophrys* spp., *Orchis* spp., *Ornithogalum* spp., *Pancratium maritimum, Rosa* spp., *Scilla* spp., *Sternbergia* spp., *Tulipa* spp.

Medicinal and Aromatic Plants (tentative list)	*Achillea* spp., *Acorus calamus, Aesculus hippocastanum, Allium* spp., *Ammi* spp., *Ankyropetalum gypsophiloides, Artemisia* spp., *Atropa belladonna, Borago officinalis, Cannabis sativa, Capparis spinosa, C.ovata, Ceratonia siliqua, Colchicum speciosum, Coriandrum sativum, Corydothymus capitatus, Crataegus* spp., *Crocus sativus, Cuminum cyminum, Cyclotrichium niveum, C.origanifolium, Datura stramonium, Digitalis lanata, Foeniculum vulgare, Frangula alnus, Glycyrrhiza glabra, Gypsophila arrostii, G.bicolor, G.eriocalyx, G.perfoliata, G.venusta, Hyoscyamus* spp., *Hypericum perforatum, Juniperus* spp., *Laser trilobum, Laurus nobilis, Liquidambar orientalis, Malus sylvestris* ssp. *orientalis, Melissa officinalis, Mentha pulegium, M.spicata, Micromeria fruticosa, Myrtus communis*, Orchidaceae plants, *Origanum* spp., *Papaver somniferum, Peganum harmala, Pimpinella anisum, Pistachia vera, P.shindjuk, Prunus laurocerasus, Rhamnus* spp., *Rhus coriaria, Rosa canina, Rosa damascena, Rosmarinus officinalis, Ruscus aculeatus, Ruta chalepensis, Salvia fruticosa, S.sclarea, S.tomentosa, Satureja* spp., *Sideritis* spp., *Silybum marianum, Tilia spp., Thymbra spicata, Thymus* spp., *Trachystemon orientalis, Urtica dioica, U.pilulifera, Vaccinium arctostaphylos, V.myrtillus, Viburnum opulus, Ziziphus jujuba*
Plant Species Used for Range Rehabilitation (courtesy of TEMA)	*Anthoxanthum odoratum, Bromus anthoxanthum, Hordeum bulbosum, Onobrychis* spp., *Poa pratensis, Trifolium* spp., *Vicia* spp.
Plant Species Used for Afforestation and Reafforestation (courtesy of TEMA)	*Cedrus libani, Cupressus sempervirens, C.arizonica* var. *glauca, Juglans regia, Pinus maritima, P.nigra, P.pinea, Quercus cerris, Q.infectoria, Q.rubra, Robinia pseudoacacia*

* L.Boulos, A.G.Miller and R.R.Mill, Regional Overview: South West Asia and the Middle East. In: S.D.Davis, V.H.Heywood and A.C.Hamilton (eds), *Centres of Plant Diversity. A Guide and Strategy for Their Conservation.* Vol 1, IUCN, Cambridge (1994). pp. 293-308.

EXISTING DATABASES

TUBITAK has created two databases, namely

(1) Database of the Turkish Plants (TUBVET) that comprises information on distribution of plants recorded in the Flora of Turkey. 95% of the database is complete. It will be available on the Internet soon.

(2) Central Database of the Turkish Herbaria (TURKHERB) that is a specimen based database containing information on herbarium specimens kept at several leading herbaria in Turkey. 75% of the database is complete. It will be open to the public on the Internet soon.

For more information please contact: Prof.Dr.Tekin Babaç, Abant Izzet Baysal University, Faculty of Science and Letters, Biology Department, 14280 Bolu, Turkey. Phone: 90-374-253 45 19 extn. 2247, Fax: 90-374-253 45 06, E-mail: tekin@abant.ibu.edu.tr

BIEN of TUBITAK has been supporting the following three projects:

(1) Nomenclatural Database of Turkish Plants. Under preparation. Contact Person: Prof.Dr.Musa Do¤an, Middle East Technical University (METU), Faculty of Science and Letters, Biology Department, 06531 Ankara, Turkey. Phone: 90-312-210 51 58

(2) Database of Turkish Freshwater Algae. Under preparation. Contact Person: Prof.Dr.Bülent _en, F›rat University, Faculty of Aquatic Sciences and Fisheries, Elaz›¤, Turkey. Phone: 90-424-212 85 00

(3) Turkish Labiatae Database (TULAB). Under preparation. Contact Person: Prof.Dr.Yusuf Öztürk, Anadolu University Medicinal and Aromatic Plant and Drug Research Centre (TBAM), 26470 Eski_ehir, Turkey. Phone: 90-222-335 29 52, Fax: 90-222-335 01 27, E-mail: yozturk@vm.baum.anadolu.edu.tr

TBAM has been creating two databases:

(1) FLOTURK (Turkish Flora Database). Distributional information on Labiatae and Compositae plants are partially available on the Internet (http:// www.anadolu.edu.tr)

(2) DOKMER (Bibliographic Database abstracting all books and scientific articles available at the Library of TBAM as well as printed articles on scientifically studied plants of Turkey). Under preparation. When complete, it will be available on the Internet.

TBAM is also contributing to the factual and bibliographic databases thate been created by APINMAP (Asian Pacific Information Network on Medicinal and Aromatic Plants). APINMAP Databases are available on a CD-ROM entitled 'AHEAD-Wealth Asia' released by PID. Executive Director, AHEAD, Publications and Information Directorate, Dr.K.S.Krishnan Marg, New Delhi-110 012, India. Phone: 91-011-574 60 24, Fax: 91-011-578 70 62, E-mail: pid@sirnetd.ernet.in

IGEME and State Statistical Office (DIE) both keep records of imported and exported products both in hard copy and in electronic form.

FACILITIES

Turkey has an efficient telecommunication network with two Turkish satellites orbiting the earth. This has facilitated the establishment of a wide-ranging computer communication web. Internet is fully in force in Turkey. Almost all Governmental institutions have developed their own documentation systems.

TBAM has the following facilities:

- Operating systems: VM/CMS, Linux, Dos, Windows 3.1, Windows 3.11, Windows 95
- Software: A rich collection of all important software.
- Hardware: A LAN is installed with a total of 30 computers comprising IBM and IBM compatible PCs (IBM 80486, Pentium 133) and Macintosh (LCIII, Performa 630, Performa 5260 Power PC, Performa 6320 Power PC)
- Printers: A total of ten printers comprising HP Laserjet 5MP, HP Laserjet 5L, Apple Laser Writer, HP Deskjet 850C, HP Desk Writer 660C, HP Desk Writer 680C, Apple Style Writer
- Scanner: HP Scanjet 4c/T colour scanner for pictures and slides
- Slide Printer: Mirus Turbo II Slide Printer for printing computer images on slide films
- Mass Storage: JAZ Mass Storage Device (iomega)
- Projection System: LitePro projection system for projecting computer images (InFocus)
- Digital Camera: om order

AARI has the following facilities:

- Operating Systems: DOS 6.0 and higher versions, Windows 3.1 and Windows 95.
- Software: DBaseIII+, DBaseIV, DBase for Windows, Excel, Access, Arcinfo, Arcviews, various statistical packages especially for multivariate analysis
- Hardware: Computer clusters including various input hardwares.
- Scanner: Scanner for pictures and slides.
- Digital Camera and Digitizer: Available

FIELD WORK OPPORTUNITIES

TUBITAK provides travel grants to plant taxonomists for plant collecting trips through individual projects approved by the Grants Committee. Regional offices of the Ministry of Forestry and Ministry of Agriculture and Rural Affairs provide local transportation and accommodation facilities for field researchers. The Seed Collection Project of Turkish Endemics and the *In situ* Conservation Programme have financed numerous field studies.

At AARI, to conduct annual survey and plant collection programmes, each year at least eight different groups undertake field trips.

Non-governmental institutions such as TEMA and DHKD run their own field trips and field studies, financed from their own resources.

TBAM has a long-base 1996 model Land Rover 4x4 vehicle, fully furnished for long expeditions equipped with GPS, wireless communication facilities, sampling facilities, etc. TBAM is actively collaborating with plant taxonomists working in other institutions for plant collecting trips and happily sharing her facilities with them.

BIOLOGICAL COLLECTIONS

Karaca Arboretum in Yalova, established by Hayrettin Karaca, President of TEMA Foundation and recipient of an Environment Award at Rio Earth Summit (UNCED), has 7000 herbaceous and 7000 woody plant species. *Ex situ* conservation and *in vitro* plant production studies are being carried out at the Arboretum. TEMA is establishing similar arboreta in 18 regions of Turkey in cooperation with TUBITAK.

Atatürk Arboretum in Istanbul was established by the Faculty of Forestry of Istanbul University. It is situated on 345 ha land and has a collection of 1250 taxa.

There is a Botanic Garden at Ege University in Bornova, ‹zmir. The garden covers an area of 10 ha.and has a collection of 2500 live taxa.

The best collection of the vascular plants of Turkey is deposited at the Herbarium of the Royal Botanic Garden, Edinburgh (E) in Scotland where the monumental work of late Prof.P.H.Davis and his colleagues took place for the preparation of the 10-volume 'Flora of Turkey and the Eastern Aegean Islands'.

The Herbarium of the Faculty of Science and Letters at Ankara University (ANK) keeps over 100 000 accessions including duplicates from major herbaria depositing Turkish plants.

The Herbarium of the Faculty of Science and Letters at Gazi University (GAZI) in Ankara has the most recent accessions including type specimens of a good number of newly characterized species. Total number of accessions is *ca.* 10 000 which comprises around 4500 species collected mostly from Central Anatolia and adjacent regions.

The Herbarium of the Faculty of Pharmacy of Istanbul University (ISTE) deposits 75 000 specimens. This is one of the best organized herbaria in Turkey.

One of the major herbaria in Turkey is situated at the Faculty of Science and Letters in Ege University (EGE) in Bornova, ‹zmir. It has *ca.*30 000 accessions belonging to *ca.* 3000 taxa.

The Herbarium of the Faculty of Forestry of Istanbul University (ISTO) is best known for its woody specimens. It holds *ca.* 35 000 accessions.

Faculties of Science and Letters in Hacettepe (Ankara), Middle East Technical (Ankara), Çukurova (Adana), Atatürk (Erzurum), Dicle (Diyarbak›r), Karadeniz (Trabzon) universities to name a few possess herbarium facilities. The Faculties of Pharmacy at Hacettepe, Ankara and Anadolu keep orderly herbaria. The latter (ESSE) has over 13 000 accessionsand is particularly rich in collections of *Labiatae.*

AARI in Menemen, Izmir has a seed gene bank and 13 field gene banks.

TRAINING AND TRAINING PROGRAMME FACILITIES

All the universities in Turkey offer graduate and postgraduate degree programmes.

A 25-day in-plant group training programme titled 'Utilization of Medicinal and Aromatic Plants in Pharmaceutical and Related Industries' (TRUMAP) is organized annually by TBAM in September for ten selected participants. This unique programme is co-sponsored by the Government of Turkey and UNIDO. TBAM laboratories and pilot plants are equipped with modern instrumentation and information facilities. TBAM has efficient lecture halls equipped with audio-visual aids, simultaneous translation and computer communication facilities.

AARI organizes a short training course for conservation and utilization of plant genetic resources and related aspects.

RECENT AND FORTHCOMING MEETINGS

11th Symposium on Plant Drugs was organized in May 22-24 1996 by the Faculty of Pharmacy at Ankara University, Ankara, Turkey.

2nd International Symposium on the Chemistry of Natural Compounds (2nd SCNC) was organized in October 22-24 1996 by TBAM in Eski_ehir, Turkey.

28th International Symposium on Essential Oils (28tn ISEO) will be held between September 1-3 1997 in Eski_ehir, Turkey.

10th In-Plant Group Training Programme on the Utilization of Medicinal and Aromatic Plants in Pharmaceutical and Related Industries (TRUMAP) will be held between September 8 and 30 1997 in Eski_ehir, Turkey.

3rd International Cosmetics Symposium (3rd ICoS) will take place on October 2-3 1997 in Eski_ehir, Turkey.

11th World Forestry Congress will be held between October 13-22 1997 in Antalya, Turkey.

International Conference on Combating Desertification will take place in May 1997 in Arizona, U.S.A.

Symposium on Rangelands and Desertification will be held in September 1997 in Iceland.

Conference of Parties on Convention to Combat Desertification and Drought will be organized in September/October 1997 in Geneva, Switzerland.

International Symposium on Erosion and Agriculture will be held in September 1997 in China.

NEW CROPS, NEW USES, NEW DEVELOPMENTS

Turkey is the biggest producer and exporter of *Origanum* herb in the World. Exports are based mainly on material collected from the wild but at least seven farmers have been cultivating *Origanum onites* in the Aegean region in recent years.

Carvacrol-rich plants in Turkey are named as Kekik. Such genera include *Origanum*, *Thymus*, *Thymbra*, *Coridothymus* and *Satureja*. Five species of *Origanum*, *Thymbra spicata*, *Coridothymus capitatus* and two species of *Satureja* are commercially utilized and exported under the CCCN codes for thyme (*Thymus vulgaris*) (0910.40.19 and 21) and wild thyme (*Thymus serpyllum*) (0910.40.11) whereas *T. vulgaris* is not a native plant of Turkey and no commercial scale collection of *T. serpyllum* takes place in Turkey.

Turkey is also an exporter of the essential oil of *Origanum* herb. Oil is obtained mainly from *O. onites*, *O. majorana* (syn. *O. dubium*) and *O. minutiflorum*.

Commercial scale cultivation of *Mentha piperita* and *Hypericum perforatum* for export is organized in Adana by a private Turkish firm.

For the last three years, essential oil from wild *Micromeria fruticosa* subsp. *brachycalyx* and subsp. *barbata* herbs collected from Mersin and Antakya provinces have been exported as penny royal oil due to its rich content of pulegone.

AARI is dealing with the domestication and cultivation trials on medicinal and aromatic plants such as *Origanum onites*, *Salvia* spp., *Sideritis* spp., *Capparis* spp., *Mentha* spp. and ornamental plants such as *Anemone* spp., *Dianthus* spp., and several geophytes. Cultivation trials of medicinal and aromatic plants is also taking place at Ege University in ‹zmir and Çukurova University in Adana.

33 organic agricultural products grouped under dried fruits, edible nuts, pulses, spices, industrial plants and processed foods are produced and exported to around 17 countries. A complete list can be obtained from IGEME.

KEY PUBLICATIONS - BASIC AND RECENT LITERATURE

TBAM publishes an annual bulletin titled 'TAB Bülteni' (Medicinal and Aromatic Plants Bulletin) in Turkish since 1989. So far, 12 issues have appeared last being in December 1996. Research results of TBAM scientists are published in international peer-reviewed journals and communicated an national and international symposia. For a complete list of publications visit TBAM website.

AARI publishes a periodical called 'Anadolu' (ISSN 1300-0225) twice a year. The research results and information on activities are published mainly in this journal. Research results are also communicated an other journals and symposia. A list of articles can be obtained upon request.

TEMA publishes a quarterly Bulletin of Activities. 'Karaca Arboretum Magazine' is published by Karaca Arboretum in Yalova. The magazine publishes interesting research papers on the flora of Turkey in Turkish and English with colour photographs.

IGEME publishes books, reports, directories and journals. The periodical 'IGEME'den Bak›_' (View from IGEME) is published quarterly in Turkish.

A list of basic literature is annexed.

ENVIRONMENTAL LEGISLATION

The Government of Turkey had signed the Convention on Biological Diversity (CBD) in June 1992. A regulation on Collection, Conservation and Utilization of Plant Genetic Resources of Turkey was published in the Official Gazette on August 15 1992. Turkey has ratified the CBD in December 1996, and a Master Plan for Environmental Protection is being prepared.

Environment Law (No.2872) came into force on August 9 1983. The enabling decree was published by the Ministry of Environment on October 19 1989 declaring Special Protected Areas.

National Park Law (No.2873) was published in the Official Gazette on August 11 1983 which amended the Forest Law (No.6831 of September 5 1956).

For more information see the section above on Turkey's conservation commitment

ANNEX 1: GOVERNMENTAL AND NON-GOVERNMENTAL INSTITUTIONS

Note: Only those institutions that have responded to our inquiry are indicated below.

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1. **Aegean Agricultural Research Institute (AARI)**
   Full Contact Dr. A.Ertuð Fýrat, Director, Ege Tarýmsal Araþtýrma Enstitüsü, P.O.Box 9, Menemen, 35661 Ýzmir, Turkey. Phone: 90-232-846 13 31 PBX, Fax: 90-232-846 11 07.

   Activities: AARI is National Coordination Centre for National Plant Genetic Resources Research Programme; National Medicinal and Aromatic Plants Research Programme; survey and collection of wild relatives of cereals, forages, food legumes, fruits and nuts, ornamentals, medicinal and aromatic plants, industrial plants, vegetables, endemic plants. The institute has *in situ* and *ex situ* conservation sites; cultivation sites; gene banks (seed gene bank for base and active collections for long and medium term conservation facilities; and 13 field gene banks); herbarium; Geographical Information System (GIS) Laboratory; Genetic Diversity Laboratory; Seed Physiology Laboratory; Tissue Culture Laboratory; Technology Laboratory; Documentation facility.

   Sources of Funding: National PGR programme is financed by the Government of Turkey. The *in situ* project is financed by GEF (World Bank).

2. **Anadolu University Medicinal and Aromatic Plant and Drug Research Centre (TBAM), 26470 Eskiþehir, Turkey.**
   Full Contact: Prof.Dr.K.Hüsnü Can Baþer, Director, Anadolu Üniversitesi Týbbi ve Aromatik Bitki ve Ýlaç Araþtýrma Merkezi (TBAM), 26470 Eskiþehir, Turkey.
   Phone: 90 - 222 - 335 29 52. Fax: 90 - 222 - 335 01 27.
   E-mail: tbam@vm.baum.anadolu.edu.tr
   or khcbaser@vm.baum.anadolu.edu.tr
   URL: http://www.anadolu.edu.tr/anadolu/tbam/index.html

   Activities: Process development and production of raw materials from medicinal and aromatic plants; R&D and quality control of plant based raw materials and products; pharmaceutical and cosmetic product development; biological activity testing, toxicological evaluation and tissue culture studies with animal and human cells; computerized information and documentation services; group training and individual training in multidisciplinary fields; rehabilitation of non-functional phytochemical plants; feasibility studies; screening of the flora of Turkey for new leads on phytochemicals and sources of essential oils. For more information kindly visit the TBAM website.

   Sources of Funding: Government, research grants, income generated through services

3. **The Turkish Foundation for Combating Soil Erosion, for Reforestation and the Protection of Natural Habitats (TEMA)**
   Full Contact: Mr.Hayrettin Karaca, President, Türkiye Erozyonla Mücadele, Aðaçlandýrma ve Doðal Varlýklarý Koruma Vakfý (TEMA), Çayýr Çimen Sk. Emlak Kredi Bloklarý A2, Levent, 80620 Istanbul, Turkey.
   Phone: 90-212-281 10 27 (5 lines) and 283 78 16 (5 lines).
   Fax: 90-212-281 11 32, E-mail: deryal@boun.edu.tr

   Activities: Awareness raising and public and political pressure creation on issues relevant to land degradation, deforestation, protection of the top soil level and associated natural habitats and life; and development of environmentally sound policies for combating soil erosion and the protection of biodiversity in Turkey. Developing and implementing projects on rural development, rangeland rehabilitation, reforestation, erosion mapping and educational programmes. Related activities for ensuring the protection and improvement of natural habitats, human health, soil and vegetative cover and forests.

Key Players and Contacts: Dr.Leyla Derya Çelikel

Sources of Funding: Membership (26%), private donors (8%), commercial enterprises (26%), property (18%), activities (sales, auctions, etc.) (22%).

4. **Export Promotion Centre of Turkey (IGEME)**
Full Contact: Emre ERGÝN, Deputy Secretary General, Ýhracatý Geliþtirme Etüd Merkezi (ÝGEME), Mithatpaþa Cad. 60, Kýzýlay, 06420 Ankara, Turkey.
Phone: 90-312-417 22 23, Fax: 90-312-417 22 33,
E-mail: igeme@igeme.org.tr, URL: http://igeme.org.tr
Rotterdam Office: ttpo@pop.pi.net or ttpo.wtc.rotterdam@pi.net

Activities: Promotional activities to enhance the exportation of Turkish products. Activities include seminars, publications, establishment of contacts, research and development, training, provision of information, etc.

Key players and contacts: Ms.Meral Gündüz Yýlmaz, Specialist, Agricultural Engineer, Person in Charge of Agricultural Products. Address same as above.

Sources of Funding: Funds generated through services.

5. **Society for the Protection of Nature (DHKD)**
Full Contact: Ms.Nergis Yazgan, General Director, Doðal Hayatý Koruma Derneði (DHKD), P.K.18, Bebek, 80810 Istanbul, Turkey.
Phone: 90-212-279 01 39 and 90-212-279 01 40, Fax: 90-212-279 55 44.

Activities: Conservation of threatened species in fields, forests, coast and marine, wetlands, steppe/grassland.

Key players and contacts: Ms.Sema Atay, Plant Section Coordinator; Mr.Andy Byfield, Fauna and Flora International, Plant Conservation Officer for Turkey.

Sources of Funding: International grant agencies (e.g., EU, WWF, FFI); National commercial sponsorship (e.g., Procter&Gamble, Garanti Bankasý)

6. **The Herbarium of The Faculty of Pharmacy of Istanbul University (ISTE)**
Foull Contact: Prof.Dr. Neriman Özhatay, Head, Ýstanbul Üniversitesi Eczacýlýk Fakültesi Herbaryumu (ISTE), Beyazýt, 34452 Istanbul, Turkey.
Phone: 90-212-514 03 64, Fax: 90-212-519 08 12.

Activities: The herbarium maintains 75 000 specimens of vascular plants. Studies on the flora of Turkey, medicinal and useful plants, ethnobotanical conservation, habitat conservation.

Sources of Funding: Government, grant agencies

7. **The Herbarium of Gazi University Faculty of Science and Letters (GAZI)**
Full Contact: Prof.Dr. Tuna Ekim, Head, Gazi Üniversitesi Fen-Edebiyat Fakültesi Biyoloji Bölümü Herbaryumu (GAZI), Hipodrom, 06500 Ankara, Turkey.
Phone: 90-312-212 45 32, Fax: 90-312-212 22 79. E-mail: herb@quark.fef.gazi.edu.tr

Activities: Taxonomic studies on Turkish plants. The herbarium keeps over 10.000 specimens which belong to *ca.* 4500 species of vascular plants. The herbarium is the centre for Seed Collection Project of Turkish Endemics. So far, *ca.* 5000 specimens belonging to about 1500 endemic species have been collected.

Key players and contacts: Prof.Dr.Mecit Vural, Doç.Dr.Hayri Duman, Doç.Dr. Zeki Aytaç, Dr.Nezaket Adýgüzel

Sources of Funding: Government, Research grants

8. **Biodiversity Information Research Unit (BIEN)**
Full Contact: Prof.Dr. M.Tekin Babaç, Head, Biyoçeþitlilik Enformasyon Araþtýrma Birimi (BIEN), Abant Ýzzet Baysal University, Faculty of Science and Letters, Biology Department, 14280 Bolu, Turkey.
Phone: 90-374-253 45 19 ext.2247, Fax: 90-374-253 45 06,
E-mail: tekin@abant.ibu.edu.tr, URL: http://www.bio.ibu.edu.tr

Activities: To collect biological and economic data on living natural resources and to keep them in databases in a user-friendly format; to establish a biological diversity network among Turkish institutions and researchers; to collaborate with other biodiversity centres to exchange information and for joint projects; to integrate databases developed with GIS for preparing maps of vegetation, flora, genetic reserve and natural conservation areas.

Sources of Funding: Grants from the Scientific and Technical Research Council of Turkey (TUBITAK).

9. **The Environment Foundation of Turkey**
Mr. Engin Ural, Secretary-General, Türkiye Çevre Vakfý, Tunalý Hilmi Cad. 50/20, 06660 Ankara, Turkey. Phone: 90-312-425 55 08, Fax: 90-312-418 51 18

10. **Turkish Society for the Protection of Nature and its Resources (TTKD)**
Türkiye Tabiatýný Koruma Derneði (TTKD), Menekþe Sk. 29/4, Kýzýlay, Ankara, Turkey.

11. **The Authority for the Protection of Special Areas**
Özel Çevre Koruma Kurumu Baþkanlýðý, Ministry of Environment, Ankara, Turkey

12. **General Directorate of the Preservation of Natural and Cultural Heritage**
Kültür ve Tabiat Varlýklarýný Koruma Genel Müdürlüðü, Ministry of Culture, Ankara, Turkey

13. **The General Directorate of Natural Parks**
Milli Parklar Genel Müdürlüðü, Ministry of Forestry, Ankara, Turkey.
Phone: 90-312-212 63 00 and 213 54 78, Fax: 90-312-222 51 40

ANNEX 2: KEY PUBLICATIONS

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ANNEX 3: NATIONAL PARKS, NATURE PARKS, NATURE RESERVES AND NATURE MONUMENTS IN TURKEY (AT END OF 1996)

No.	National Park	Province	Area (ha)	Established
1	Aladaðlar	Niðde, Adana,Kayseri	54,524	1995
2	Altýnbeþik Maðarasý	Antalya	1,156	1994
3	Altýndere Vadisi	Trabzon (Maçka)	4,800	1987
4	Baþkomutan	Afyon	35,500	1981
5	Beydaðlarý Sahil	Antalya	34,425	1972
6	Beyþehir Gölü	Konya	87,750	1993
7	Boðazköy - Alacahöyük	Çorum	2,634	1988
8	Dilek Yarýmadasý	Aydýn	10,985	1966
9	Gelibolu Yarýmadasý	Çanakkale	33,000	1973
10	Göreme	Nevþehir	9,572	1986
11	Hatýla Vadisi	Artvin	16,988	1994
12	Honazdaðý	Denizli	9,219	1995
13	Ilgazdaðý	Kastamonu	1,088	1976
14	Kaçkar Daðlarý	Rize	51,550	1994
15	Karagöl - Sahara	Artvin	3,766	1994
16	Karatepe - Aslantaþ	Adana	7,715	1958
17	Kazdaðý	Balýkesir	21,300	1993
18	Kýzýldað	Isparta	59,400	1969
19	Kovada Gölü	Isparta	6,534	1971
20	Köprülü Kanyon	Antalya	36,614	1973
21	Kuþ Cenneti	Balýkesir	64	1959
22	Marmaris	Muðla	33,350	1996
23	Munzur Vadisi	Tunceli	42,000	1971
24	Nemrut Daðý	Adýyaman	13,850	1988
25	Saklýkent	Muðla	12,390	1996
26	Soðuksu	Ankara	1,050	1959
27	Spil Daðý	Manisa	5,505	1968
28	Termessos	Antalya	6,702	1971
29	Troya Tarihi	Çanakkale	13,350	1996
30	Uludað	Bursa	11,338	1961
31	Yedigöller	Bolu	2,019	1965
32	Yozgat Çamlýðý	Yozgat	264	1958
	National Park Total Area		*649,486*	
	Nature Parks			
1	Abant Gölü	Bolu	1,150	1988
2	Ayvalýk Adalarý	Balýkesir	17,950	1995
3	Bafa Gölü	Aydýn	12,281	1994
4	Ballý Kayalar	Kocaeli	1,847	1995
5	Çorum - Çatak	Çorum	387,5	1984
6	Gölcük	Isparta	6,684	1991
7	Kurþunlu þelalesi	Antalya	394	1991
8	Ölüdeniz - Kýdralý	Muðla	950	1983
9	Polonezköy	Istanbul	3,004	1994
10	Uzungöl	Trabzon	1,625	1989
11	Yazýlý Kanyon	Isparta	600	1988
	Nature Parks Total Area		*46 872.5 ha*	
	Nature Reserves			
1	Akdoðan ve Ruzgari	Bolu	174	1988
2	Akgöl (Ereðli Sazlýðý)	Karaman	8,787	1995
3	Alacadað	Antalya	427	1990
4	Beykoz Göknarlýk	Istanbul	46,6	1987
5	Çamburnu	Rize	180	1993
6	Çýðlýkara	Antalya	15,889	1991
7	Çitdere	Karabük	721,5	1987

8	Dandindere	Afyon	260	1994
9	Demirciönü	Bolu	430	1994
10	Dibek	Antalya	550	1993
11	Gala Gölü	Edirne	2,369	1991
12	Habibineccar	Hatay	118	1993
13	Hacýosman Ormaný	Samsun	88	1987
14	Kale - Bolu Fýndýðý	Bolu	460	1988
15	Kartalgölü	Denizli	1,300	1994
16	Kasalic	Kütahya	134	1991
17	Kasatura Körfezi	Kýrklareli	329	1988
18	Kasnak Meþesi	Isparta	1.300,5	1987
19	Kavaklý	Karabük	334	1987
20	Kazdaðý Göknarý	Balýkesir	240	1988
21	Korçoban	Kahraman Maraþ	580	1993
22	Kökaz	Bolu	324	1987
23	Sakagölü Körfezi	Kýrklareli	1,345	1988
24	Sarýkum	Sinop	785	1987
25	Seyfe Gölü	Kýrþehir	10,700	1990
26	Sýrtlandað Halep Çamý	Muðla	760	1988
27	Sultan Sazlýðý	Kayseri	17,200	1988
28	Sülüklügöl	Bolu	809,5	1988
29	Sütçüler Sýðla Ormaný	Isparta	88,5	1987
30	Tekgöz - Kengerlidüz	Hatay	172	1987
31	Vakýf Çamlýðý	Kütahya	685	1988
32	Yumurtalýk	Adana	10,400	1994
	Nature Reserves Total Area		*88 023.5 ha*	
	Nature Monuments			
1	Ali Aðanýn Kavaðý	Gümüþhane	1,500 m^2	1995
2	Ana Ardýç	Mersin	2,500 m^2	1994
3	Anadolu Kestanesi	Ýzmir	2,500 m^2	1994
4	Araç Türbe Çamý	Kastamonu	2,500 m^2	1994
5	Asarlýk Tepeler	Ankara	52	1994
6	Aslan Ardýç	Antalya	2,500 m^2	1995
7	Barla Sedir Aðacý	Isparta	2,500 m^2	1994
8	Bayýr Çýnarý	Muðla	1,500 m^2	1995
9	Bayýr Servi Aðacý	Muðla	1,500 m^2	1995
10	Beldeðirmeni Köyü Çýnarý	Kastamonu	1,500 m^2	1995
11	Bigbig Orman	Adana	164 m^2	1994
12	Çatal Çam	Isparta	2,500 m^2	1995
13	Çatal Sedir	Isparta	2,500 m^2	1994
14	Dokuzkardeþler Çamlýðý	Çankýrý	1,500 m^2	1994
15	Erenler Çamý	Kastamonu	1,500 m^2	1995
16	Eskipazar Türbe Çamlýðý	Çankýrý	500 m^2	1994
17	Fýstýk Çamý	Ýzmir	2,500 m^2	1995
18	Fosil Ardýç	Konya	500 m^2	1994
19	Görkemli Meþe	Sinop	2,500 m^2	1994
20	Güney þelalesi	Aydýn	0,5	1994
21	Ýlk Kurþun Çýnarý	Ýzmir	2,500 m^2	1995
22	Kadýnlar Kuyusu Koca Menengiçi	Ýzmir	2,500 m^2	1995
23	Karamýk Köyü Sediri	Antalya	2,500 m^2	1995
24	Kýzýlaðaç Koyu Lübnan Sediri	Antalya	2,500 m^2	1995
25	Kýzýlcaelmalý Meþesi	Sinop	2,500 m^2	1994
26	Kiram Evliya Ardýcý	Gümüþhane	2,500 m^2	1995

27	Kocakatran	Mersin	2,500 m^2	1994
28	Kocakatran Lübnan Sediri	Antalya	2,500 m^2	1995
29	Koç Sedir	Antalya	2,500 m^2	1995
30	Kunduracý Çýnarý	Ýzmir	1,500 m^2	1994
31	Meþe Aðacý	Adapazarý	2,500 m^2	1994
32	Mýzýkçam	Kütahya	0,5	1993
33	Onikikardeþler Kayýný	Kastamonu	1,500 m^2	1995
34	Ovacýk Köyü Anadolu Kestanesi	Ýzmir	2,500 m^2	1995
35	Örümcek Ormaný Köknarý (1)	Trabzon	2,500 m^2	1995
36	Örümcek Ormaný Köknarý (2)	Trabzon	2,500 m^2	1995
37	Örümcek Ormaný Köknarý (3)	Trabzon	2,500 m^2	1995
38	Örümcek Ormaný Köknarý (4)	Trabzon	2,500 m^2	1995
39	Örümcek Ormaný Ladini (1)	Trabzon	2,500 m^2	1995
40	Örümcek Ormaný Ladini (2)	Trabzon	2,500 m^2	1995
41	Örümcek Ormaný Ladini (3)	Trabzon	2,500 m^2	1995
42	Örümcek Ormaný Ladini (4)	Trabzon	2,500 m^2	1995
43	Samandere þelalesi	Bolu	10	1988
44	Söðüt KöyüÇýnarý	Muðla	1,500 m^2	1995
45	Söðüt Yaylasý Ulu Ardýç	Isparta	2,500 m^2	1994
46	Subaþý - Havuzlar	Istanbul	2,500 m^2	1995
47	Þah Ardýç	Antalya	2,500 m^2	1995
48	Tasdede Pýrnal Meþesi	Ýzmir	1,500 m^2	1994
49	Teos Menegiçi	Ýzmir	1,500 m^2	1994
50	Titrek Kavak	Konya	2,500 m^2	1994
51	Ulu Kavak	Yozgat	1,500 m^2	1994
52	Ulu Meþe	Muðla	1,500 m^2	1995
53	Yarendere Fýstýk Çamý	Ýzmir	2,500 m^2	1995
54	Yemiþçi Çýnarý	Ýzmir	2,500 m^2	1995
	Nature Monuments Total Area		*73.8 ha*	
	GRAND TOTAL		**778 455. 8 ha**	