

MINISTRY OF AGRICULTURE, NATURAL RESOURCES
AND ENVIRONMENT

FORESTRY DEPARTMENT

FORESTRY DEVELOPMENT IN CYPRUS

PREPARED BY:

AL. CHRISTODOULOU

SENIOR CONSERVATOR OF FORESTS

NICOSIA 1994

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Summary

Cyprus is the third largest island in the Mediterranean with an area of about 9 251 sq.km and a population of 706 900 according to the 1990 estimates. The forests occupy 19% of the total area and they are almost exclusively state owned.

The bulk of the forests grow on steep and often rocky slopes of the central mountainous massif. The main forest species is Pinus brutia. Other important species are, Pinus nigra, Cedrus brevifolia, Platanus orientalis, Alnus orientalis, Quercus alnifolia, Arbutus andrachne, Juniperus spp., Olea europaea, Acer obtusifolium and Pistacia terebinthus.

The indirect and multipurpose uses of the forests especially environmental protection, nature conservation, wildlife conservation, tourism, recreation, etc. are given more weight than their direct economic returns. Their direct contribution to the gross national product is almost negligible rising only to about 1%.

Very significant results have been achieved in the prevention and suppression of forest fires, which constitute the biggest hazard of the forests, thanks to proper education of both forestry staff and the public, good public relations and also through the use of mechanised methods in forest fire fighting. It is worth mentioning that the best years, as regards area burnt since 1886 are 1992 and 1990, with an area of 8.5 Ha and 9.0 Ha respectively.

Through very successful reforestation of bare forest areas and by putting under forestry marginal degrading lands the Cyprus forests are improving and increasing continuously.

The forests of Cyprus are managed according to the sustained yield principle. The Marking Rules were revised in 1991 aiming to the maximum possible social benefits from the forests through their multiple use.

INTRODUCTION

Cyprus is the third largest island in the Mediterranean, with an area of about 9 251 sq.km. It lies in the north-eastern corner of the Mediterranean, approximately 33° east and 35° north.

About 37% of the island's total area has been occupied by Turkey since 1974, when this country invaded Cyprus. Since then, the occupied northern part has been inaccessible to the Cyprus Government in every respect.

The population of the whole island in 1990, was estimated at 706 900. Out of this, 81.6% are Greek Cypriots including Maronites, Armenians, Latins and others and 18.4% Turkish Cypriots settled in the north. The economy of the country, which compares well with those of many European countries, is mainly based on light industry, tourism and agriculture. Contribution of forestry is only about 1% of the GNP, but the value of its non-market benefits, are highly valued by both the public and the state.

Cyprus is a mostly mountainous country. Along its northern part, runs the Kyrenia range, rising up to 1 000 m. elevation. Its centre, is occupied by the larger Troodos range, which rises up to 2 000 m. It is on these ranges with the very steep slopes, where most of the Cyprus forests grow. Between the two ranges lies the Mesaoria plain, which together with the narrow alluvial coastal plains, forms the bulk of the agricultural land.

The climate is typically Mediterranean, with short, mild winters and prolonged, dry and hot summers. The coldest months, are January and February, with an average temperature of 9°C and the hottest are July and August, with an average temperature of 35°C.

Precipitation is low, with the average annual figures being 300 mm for the central plain and north-eastern coasts, 500 mm for the western coasts and as much as 1000 mm for the highest peaks of Troodos.

The poor rainfall, the bulk of which falls between November and April, coupled with the high summer temperatures, is probably the main limiting factor to plant growth. In addition, because of its intensity, it causes severe soil erosion, especially on exposed soils.

Forest land occupies 175405 ha (92% are State Forests) representing 19% of the total Cyprus area. About 44000 ha of forest land is under Turkish occupation since 1974.

Forest species consist mainly of Pinus brutia and Pinus nigra. Other species like cedar, plane, alder etc. occupy negligible areas which are managed mainly for non-wood services such as recreation, tourism and nature conservation.

I. THE FOREST ESTATE, POLICY AND ORGANISATION

1. The Forest Estate

1.1. Ownership and legal status

Forest land in Cyprus amounts to about 175 405 ha. A breakdown of forest area statistics, for the whole country, is shown below. It is estimated that, about 25% of the total forest area is in the occupied north.

THE FOREST ESTATE IN CYPRUS

CATEGORY OF FOREST	AREA (Ha)	% OF TOTAL FOREST AREA	% OF TOTAL CYPRUS AREA
Main State Forests	145 925	83.2	15.8
Minor State Forests	15 902	9.1	1.7
ALL STATE FORESTS	161 827	92.3	17.5
Private Forests	13 578	7.7	1.5
ALL FORESTS	175 405	100.0	19.0

The private forests are made up of a great number of small holdings. These, are either enclaves within the state forest, or occur along its boundaries. They are mostly abandoned agricultural and grazing lands, which have gradually been colonized by forest trees. They do not enjoy any kind of management, so in fact it can be said that private forestry, as a land use system, is non-existent in Cyprus.

The state forest estate, is composed of a mosaic of high, irregular forests, reforested zones, maquis, garigues and a portion of bare lands which are either recently burnt sites or newly acquired lands. All the state forest have been classified under the provisions of forest legislation, as either Main or Minor State forests.

The Forest Law and Forest Regulations of 1967, provide that the Main State forests, may be further classified into the following subcategories.

- (i) Permanent Forest Reserves (PFR): to be managed primarily for wood production.
- (ii) National Forest Parks (NFP): to be managed primarily for public recreation and amenity, and
- (iii) Nature Reserves (NR): for nature conservation.

Similarly, the Minor State forests may be classified into five subcategories for various other minor uses such as grazing, nurseries etc.

To date only a small part of the state forest area has been classified into subcategories. A provisional classification made by the Forestry Department in 1981, aimed to identify and put under proper management, forest areas of high recreational or conservational value.

Forestry is confined to areas which are for various reasons unsuitable for agriculture. However, presently the main pressure on forest land does not come from expanding agriculture, but from tourist development.

Present trends of state forest land area are encouraging. During the last decade, it has been steadily expanding—though at a low rate (400 ha/yr). This expansion is through the Forestry Department's Expansion Division, whose main task is to identify and bring under forestry, marginal and derelict lands.

1.2. Forest Vegetation

The main forest tree species is Pinus brutia, growing from sea level to 1300–1600 m altitude and forming more than 85% of the productive forests' growing stock.

The coastal forests are mainly low and high maquis, with scattered P.brutia stands. Their dominant species are, Juniperus phoenicea, Pistacia lentiscus, Pistacia terebinthus and Quercus coccifera. Ground vegetation consists largely of various Cistus spp. Thymus spp. and Poterium spinosum. The productivity of these areas is very low, but their naturalness and high floristic diversity make them valuable for the country.

In the Troodos range where the bulk of forests is found, P.brutia stands with a dense understory of Quercus alnifolia and Arbutus adrachne, dominate up to 1300–1600 m. On the highest peaks, the forest cover is of closed Pinus nigra stands, with an understory of Quercus alnifolia and Juniperus foeditissima.

Apart from the above major species, other commercial native species include Cedrus brevifolia, Alnus orientalis and Platanus orientalis. The main exotic species used in afforestations are various Eucalyptus and Acacia species.

2. The Forest Authority and Administration

The forest authority in Cyprus is the Forestry Department (F.D.) under the Ministry of Agriculture, Natural Resources and Environment.

The Director is assisted by a Chief Conservator of Forests, who is responsible for the five "Head Sectors" functioning in the Department.

There are three Territorial Divisions i.e. Paphos, Troodos and Nicosia and twelve specialist Divisions, the latter being Planning, Research, Education and Silviculture, Forest Recreation and Parks, Forest Conservation, Land and Survey, Forest Expansion, Forest Management, Computerization, Forest Utilization, Forest Protection and Forest Engineering. These specialist Divisions are grouped into five sectors, each sector is headed by a Senior Conservator of Forests.

The staff of the Department amounted at the end of 1993 to 25 professionals, 247 subprofessionals and 249 labours.

3. Forest Policy

The Forest Policy of the Government of the Republic of Cyprus, which was adopted and declared in 1950, constitutes a broad perspective of objectives, covering the role of the forests in the provision of both material (direct and indirect), social and aesthetic benefits. Some of the main objectives of the forest policy of Cyprus are:

- Protection of the forest against its enemies and especially against fire.
- Sustained Production of wood, so as to meet the requirements.
- Provision of employment to the inhabitants of remote villages, raw material to local industries and fuel wood to the rural population.
- Proper management of the forest resources to meet the rapidly expanding public demand for forest recreation.

- Soil erosion control.
- Expansion of forest cover into the lowlands for purposes mainly other than wood production (e.g. landscape, recreation).

Attainment of forest policy's objectives is supported by the Forest Law and Forest Regulations of 1967.

4. Financing in Forestry

All the financing of the Forestry Department is provided annually in the Ordinary and Development Budgets of the Republic of Cyprus.

The 1994 Ordinary Budget provides CY£ 4.045.835 and the Development Budget CY£ 2.501.430 bringing to a total of CY£ 6.547.265.

II. RECENT DEVELOPMENTS AND MAIN ACTIVITIES IN FORESTRY

1. Forest Management

The state forests are managed, with a clearly multipurpose approach, and in most areas, the non-wood values of the forest are ranked first. The primary objectives of management for a particular forest area, are largely determined by its classification status.

In general, it can be said that the Minor State forests are managed almost exclusively for non-wood purposes. Among the first priorities of the F.D, is the provision of adequate recreational facilities to the public, to meet the existing, high demand. For this purpose, quite a large number of picnic sites, campsites, and trails have been developed and are operating in various areas of both the Main and Minor State forests.

The Main State forests are managed for several purposes. NR are simply protected from any development. The areas designated or provisionally classified as NFP are primarily managed for public recreation and amenity.

Areas of the Main State forests that, do not fall into one of the above two categories, are those which can be managed primarily for wood production (PFR). These are mainly P.brutia forests but there are also Quercus alnifolia and Arbutus adrachne forests. Only half of the total area of the P.brutia forests were classified as "currently exploitable" in the 1991 inventory of these forests (about 44 000 ha).

The management of the above forests, as far as wood production is concerned, is based on the results of Continuous Forest Inventory, which was repeated in 1991/92. The preliminary results of the recent Inventory are as follows:

Growing Stock : 3.055.000 cubic meter round over bark
(m³ R.O.B.)

Annual Mean Increment: 46.500 m³ R.O.B. or 1,5%

Annual Yield : 45.000 m³ R.O.B. (including part of
branchwood proposed for
chipboard production)

2. Silviculture

Reforestation of burnt sites and clearfelled areas, as well as afforestation of newly acquired lands, are among the major F.D's activities. Artificial regeneration is only used when natural regeneration is insufficient.

Ground preparation techniques vary with ground features and management objectives for the area. The preferred technique in mountainous areas, is mechanical terracing along the contours. Terraces are ripped and either sown or planted during the rainy season. They are considered very effective in creating favourable growing conditions for the plants and in preventing soil erosion. Various other techniques are used in areas designated as NFP, catchments of certain dammed streams, level grounds and areas uncultivable by machinery.

The main species used in reforestations are P.brutia, P.nigra P.pinea, Cedrus brevifolia, and various Eucalyptus and Acacia species. The required seedlings are raised in four main nurseries. Most of the required P.brutia seed is purchased from villagers at a fixed price.

Failed reforestation are common especially in dry years, making beating-up indispensable. Fertilization and weeding are confined to nurseries.

During the period 1984-1993 an area of 5 716 ha was reforested in various parts of Cyprus.

Cleanings and marking for thinning and final felling, are carried out under strict rules, which have been approved by the Ministry of Agriculture, Natural Resources and Environment. These Marking Rules, applied mainly in the P.brutia forests, were revised in 1991.

The new rules aim to provide the maximum possible social benefits from the forests through their multiple use i.e. conservation, protection, recreation and production and at the same time to preserve their naturalness and formation.

3. Forest Protection

Forest protection is primarily concerned with fires, which are greatly favoured by the climatic conditions, vegetation features and topography of forest areas. The F.D has gradually developed an effective system for fire prevention and fighting and has achieved a significant reduction of annual fire damage.

Damage from biotic factors is of lower significance. The main damage is caused by the pine defoliator Thaumetopoea wilkinsoni. Only severely affected stands are sprayed. Damage from the wood attacking fungus Trametes pini is probably significant but is so far unassessed.

Forest offences, including grazing—which is illegal in the Main State forests—, public encroachment on forest land and illegal felling are minimum.

4. Amenity and Recreation

Forestry plays an important role in enhancing both local and overseas tourism through the provision of camping sites, picnic sites, nature trails and areas of open-air recreation in general.

The number of people visiting the forests for rest and recreation is increasing at such a high rate that the Forestry Department finds it difficult to cope with the needs of these people as well as with the problems that their presence in the forests brings e.g. rubbish disposal, fire danger, impact on ecology etc.

The Forestry Department in co-operation with the Cyprus Tourism Organization has established and maintains twenty-eight (28) picnic sites within the State Forests. Most of these picnic sites have the following facilities: parking places, toilets, piped potable water, hearths, tables, benches, children playing grounds, etc.

Also four (4) camping sites were established and continue functioning within State Forests.

Twenty (20) Nature Trails constructed during the last few years in co-operation with the Cyprus Tourism Organization attract many walkers from both Cyprus and abroad.

Five (5) National Forest Parks having an area of 10 476 HA have been declared in State Forests and more forest areas are under study prior to declaration.

Management and development plans for the four of the above NFP i.e. Athalassa, Gavo Greco, Pedagogical Academy and Troodos have been prepared and they are under implementation.

5. Wildlife Conservation and Management

The forests of Cyprus provide a unique habitat for wildlife both flora and fauna.

The areas declared into NR and will be managed mainly for the protection of fauna and flora. These Reserves were provisionally selected and they include:

Areas which constitute important habitats of endemic animals like the Cyprus Moufflon (Ovis gmelini ophion) birds which are protected under the game Law, reptiles and amphibians which are in need of special protection.

Areas which constitute habitats of ecological and botanical interest e.g. habitats of endemic species like Cyprus cedar (Cedrus brevifolia) the Golden oak (Quercus alnifolia), the Cyprus crocus (Crocus cyprius) etc. Already the famous Cedar area of the Paphos Forest (an area of 892 ha) was declared into a Nature Reserve.

The Forestry Department initiated a programme to locate, identify and protect the Cyprus flora. Also the creation of a new botanical collection was initiated. Certain Tree Monuments were spotted and efforts are being made to acquire and protect them.

6. Forest Training and Research

The only forest educational institution in Cyprus is the Forestry College of Cyprus, established in 1951. It offers a two-year subprofessional level course and a six-month post-diploma course. The majority of the F.D'S technical staff are graduates of this institution.

Most of the professional staff and about 10% of the technical staff have, through scholarships, received postgraduate training in various fields of forestry in European countries.

Forest Research has been carried out since the 1940's. The work is focussed on applied research mainly in the field of forest genetics and the establishment of seed orchards for P.brutia and on trials of several exotic species.

7. Forest Production and Forest Industries

The production of timber (sawlogs, chipboard material, fuelwood etc.) in 1993, was about 53 000 m³ R.O.B..

In the same year the volume of imports of forest products was about five times higher, representing a C.I.F. value of about CY£ 40.000.000.

It is obvious that the deficit in wood supply is too high and that the productivity of the forests of Cyprus is limited. Therefore the deficit cannot be covered, in the near future.

However it is policy of the Forestry Department to increase forest productivity with intensive management activities, mainly in the permanent forest reserves.

The biggest wood industry in Cyprus is "Cyprus Forest Industries Ltd", established in 1970 with the aim to "ensure maximum and continuous utilization of the Cyprus forests' wood output". It is controlled by the government which owns 51% of the total number of shares. It employs about 200 people and works exclusively with locally produced wood. Its main products are a range of particle boards and constructional timber, used in building and furniture industries.

In addition, a large number (about 40), of small bandmills and four (4) sawmills are presently in operation. They produce mainly box-shooks and a smaller amount of constructional timber. Most of them are located in remote rural areas near forest boundaries and they are of great importance to the economy of these areas.

8. Road Network

The construction of new forest roads and the improvement of existing ones, constitutes an important aspect of the work of the Department, as roads serve on the one hand forest protection, tending and exploitation and on the other hand tourism and communication between forest villages.

All the extraction of wood is done through this system of main roads, jeep tracks and extraction roads. New roads and tracks are opened by the Forestry Department every year, according to the needs of the felling plan, the general communication requirements and the management of the forests.

The total length of Main Roads comes out to 1,8 km of road per square km of forest.

9. Appraisal of Forestry's Contribution

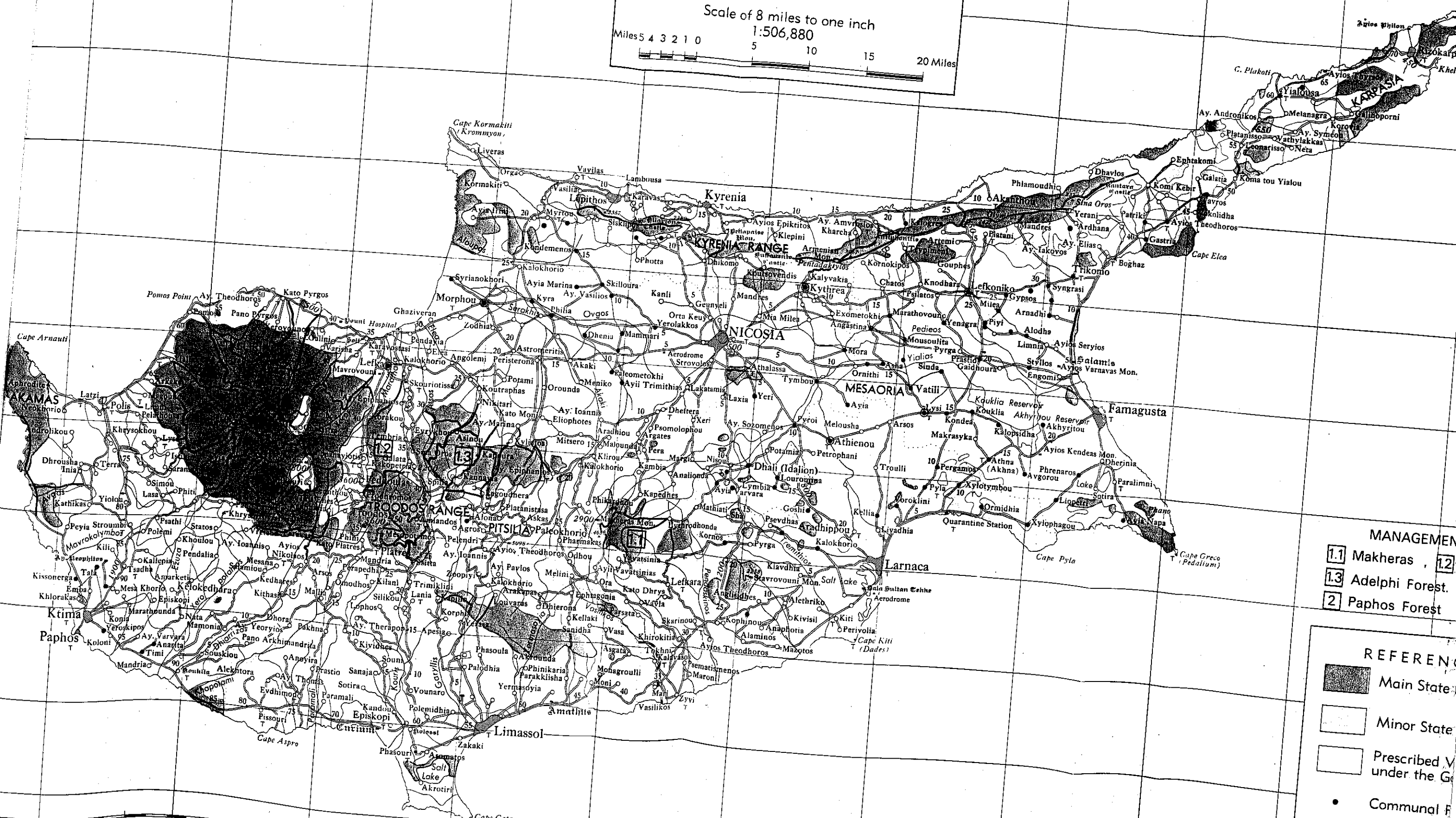
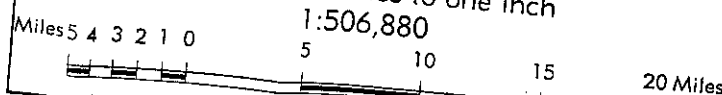
Forest resources have played an important role in the national economy of Cyprus throughout its long history, though their present contribution to Gross National Product is just less than 1%.

However, many benefits and influences of the forests such as their contribution to tourism and recreation, their role in preventing soil erosion, in promoting water conservation, in ameliorating the climate and in improving the environment are not be quantified and expressed in terms of money. Even so, the people of Cyprus have developed a very high pro-forestry conscience and this is reflected also in the attitude of both the Government and Parliament towards the Forestry Sector.

FOREST MAP OF CYPRUS

Scale of 8 miles to one inch

1:506,880



MANAGEMENT

- 1.1 Makheras
- 1.2 T
- 1.3 Adelphi Forest
- 2 Paphos Forest

REFERENCE

- Main State Forest
- Minor State Forest
- Prescribed under the Government Forest Act
- Communal Forest

