INTEGRATED MANAGEMENT CEDAR FOREST

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ECW Lebanon 2016

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Introduction

1998-1999

The cedar forest of Tannourine-Hadath El-Jebbeh has been challenged for the past decade by different insect attacks and recurring pest outbreaks that have severely damaged the trees.

Cephalcia tannourinensis Chevin

New Insect Pest

- Outbreak
- Cedar trees threatened by defoliation
- Sustainability of cedar stands threatened even more due to insect damage

Mobilization
Participants

- NGOs
- Tannourine Cedars Forest Nature Reserve Committee
- Ministry of Agriculture
- Ministry of Environment
- American University of Beirut
- Lebanese University
- National Council for Scientific Research
- Institut National de Recherche Agronomique (INRA), France
- Food and Agriculture Organization (FAO)
- Global Environment Facility (GEF)
- United Nations Environment Programme (UNEP)

Financial Aspect

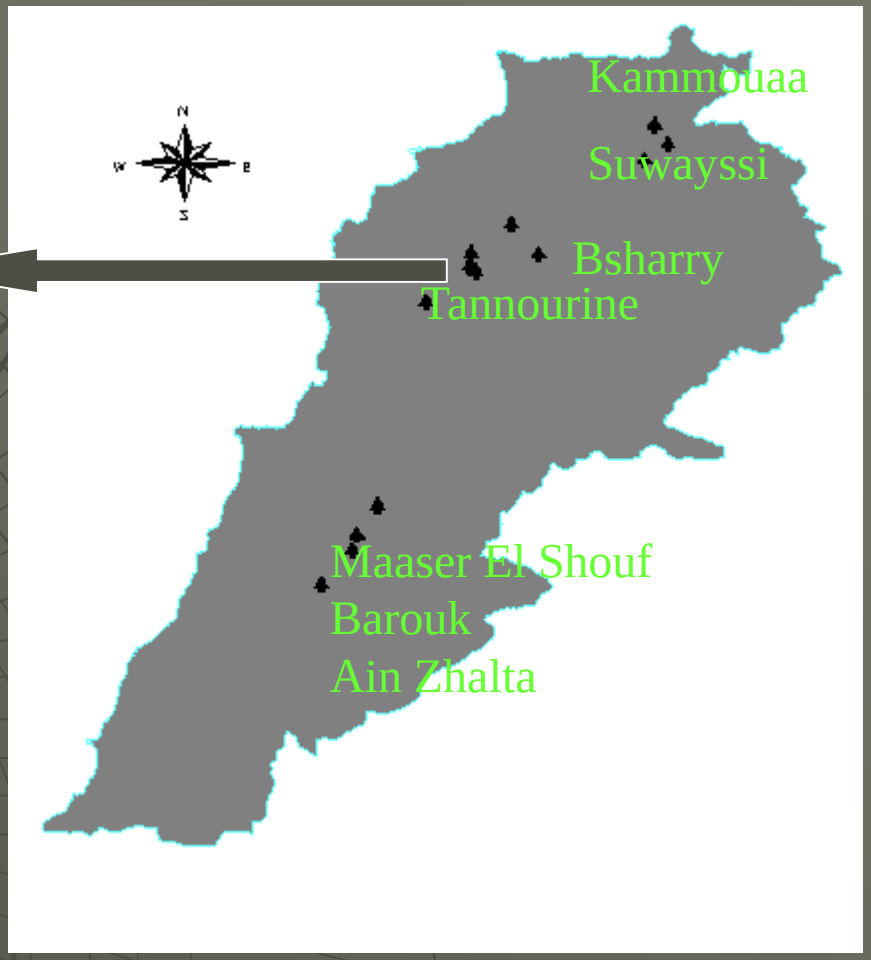
- GEF-UNEP funding: $ 530 500
- Co-financing:
  - Ministry of Environment
    - Reserve budgets 2000-2005: $240,000
    - Private sector and others including participating countries: $ 400,000

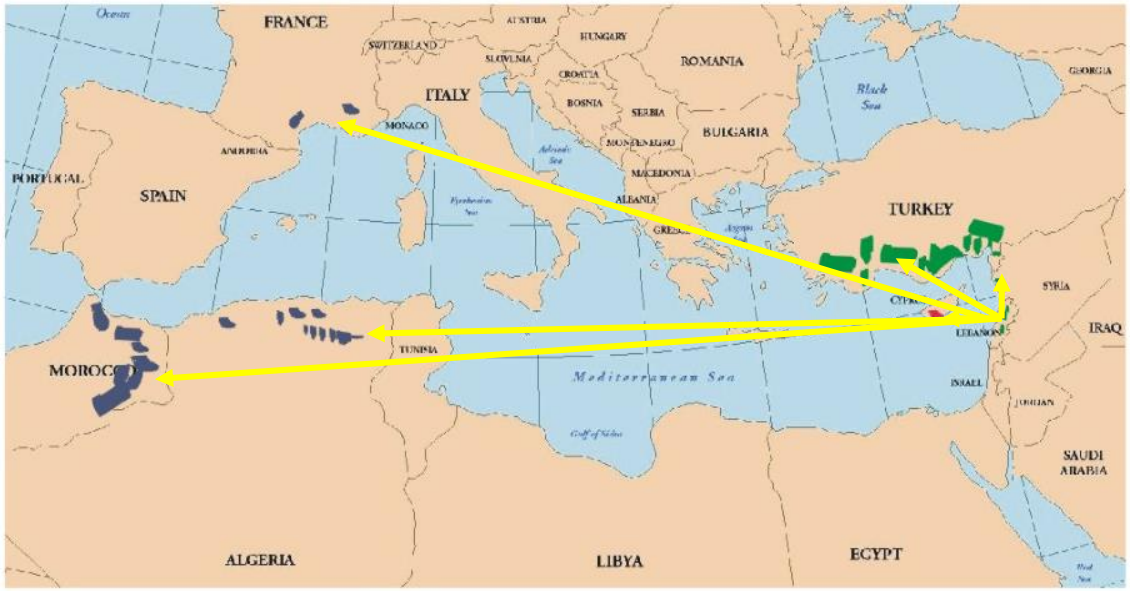
- **Close cooperation and collaboration between the different stakeholders will lead to the success of the project**

Project Goals

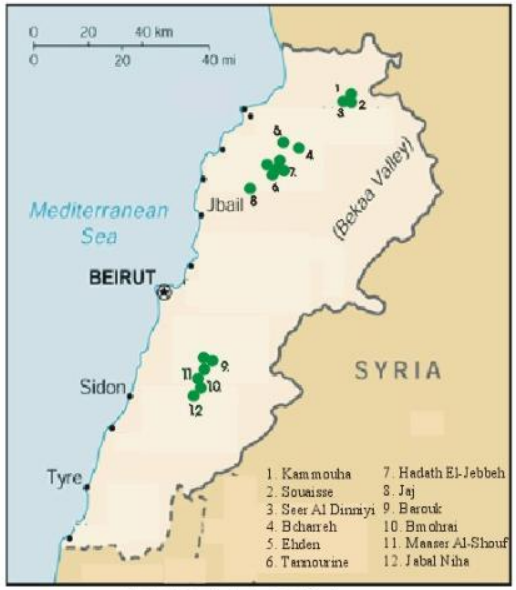
Development of an action plan for a sustainable integrated management of forests including assessment of insect infestation in cedar forests in the Mediterranean region with particular emphasis on the Tannourine cedar forest.

Tannourine Cedar Forest, Case Study





Cedars Forests in the Mediterranean Region



LEBANON

MOROCCO

ALGERIA

CYPRUS

TURKEY

SYRIA

Cedrus atlantica

Cedrus brevifolia

Cedrus libani

Objectives

- **Develop a sustainable management plan that addresses possible threats to the ecosystem of cedar forests.**
- **Understand the causes of *Cephalcia* outbreak in Tannourine and assess the possible threats of similar outbreaks in cedar forests in the Mediterranean region.**
- **Develop a pest management plan applied to the Tannourine forest and adapt this plan to other cedar forests in the region.**
- **Increased institutional and community knowledge exchange, networking, education and capacity building for the management of cedar forests.**

Achieving Sustainability

- Coordinate activities between Lebanon and the other countries
- Development of an action plan for integrated sustainable management of cedar forests in the region
- Address the possible causes of *Cephalcia* outbreak with special emphasis on weather and environmental factors
- Promoting the use of new monitoring tools in detecting insect outbreaks
- Build a team of professionals specialized in forest entomology, ecology, biodiversity
- Train various target groups on invasive species control, forest management
- Carry out public awareness initiatives about the importance of forests and biodiversity

Lebanon

June 2005

Algeria

November 2005

Morocco

March 2006

Morocco

March 2006

Turkey

April 2006

Cyprus

June 2006

Awareness Materials

- 1 DVD
- 3 booklets
  - Tree guide
  - Action plan for *Cephalcia tannourinensis*
  - Tannourine Cedar Forest Nature Reserve
- 2 leaflets
  - Trails map inside the Reserve
  - Major defoliators of the cedars of Lebanon
- Bird cards (15)
- 4 Posters
  - Tannourine Cedar Forest Nature Reserve
  - Selected flora of the Reserve
  - Mushroom species of the Reserve
  - Selected Butterflies and moths of the reserve

Booklet

خطة عمل للادارة المتكاملة
لحشرة الارز المنشارية
Action Plan for the Integrated Management of the Cedar Web spinning Sawfly
Cephalcia tannourinensis Chevin
GEF
UNEP
AUB American University of Beirut

Booklet

GEF
UNEP
AUB
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محمية غابة أرز
تنورين الطبيعية
Tannourine Cedar
Forest Nature Reserve

Pamphlet

مقدمة Introduction

Insects are the most destructive creatures of forest trees. The roots, stems, limbs, needles, leaves of healthy or weakened trees, or logs are all subject to attack. Insects (Class: Insecta) are by far the most numerous animal life inhabiting the forest. They are well adapted to their surroundings and occupy a wide variety of ecological niches. Although the majority of insect species are either beneficial or innocuous, some are exceedingly harmful. Insect outbreaks that cause economic damage to forests vary greatly in frequency, size and duration. Fortunately, most outbreaks are small and short-lived, and usually consist of one or a few spots in a stand or forest. Others, however, may expand and encompass hundreds or thousands of hectares and can last for several years.

Cedar trees are not an exception and are also attacked by numerous insect pests; a few of them may cause serious damage that may need the use of control measures to reduce the risk to trees.

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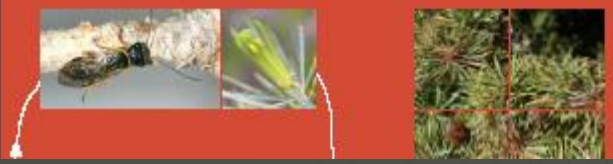
اهم الحشرات الورقية على أشجار الارز اللبناني

Major Insect Defoliators of Cedars of Lebanon

حشرة الارز المنشارية
Cedar Web-Spinning Sawfly
Cephalcia tannourinensis Chevin
(Hymenoptera: Pamphilidae)

خصائصها Biology

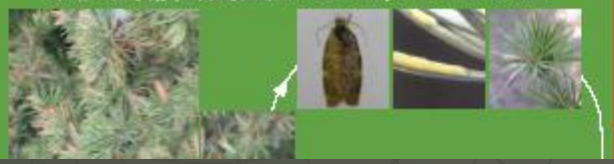
- جيل واحد في السنة
- الحشرات الكاملة تظهر في الربيع
- تضع الاناث البيض على البراعم الورقية الحديثة النمو
- اليرقات تعيش منفردة وتتغذى من إبر الارز الحديثة النمو والقديمة



عثة فروع الارز
Cedar Shoot Moth
Dichelia cedricola Diakonoff
(Lepidoptera: Tortricidae)

خصائصها Biology

- جيل واحد في السنة
- الحشرات الكاملة تظهر في شهري حزيران وتموز
- تضع الاناث البيض على أطراف أو أبر الارز مجموعات
- اليرقات تعيش مجتمعة وتتغذى من إبر الارز الحديثة النمو والقديمة

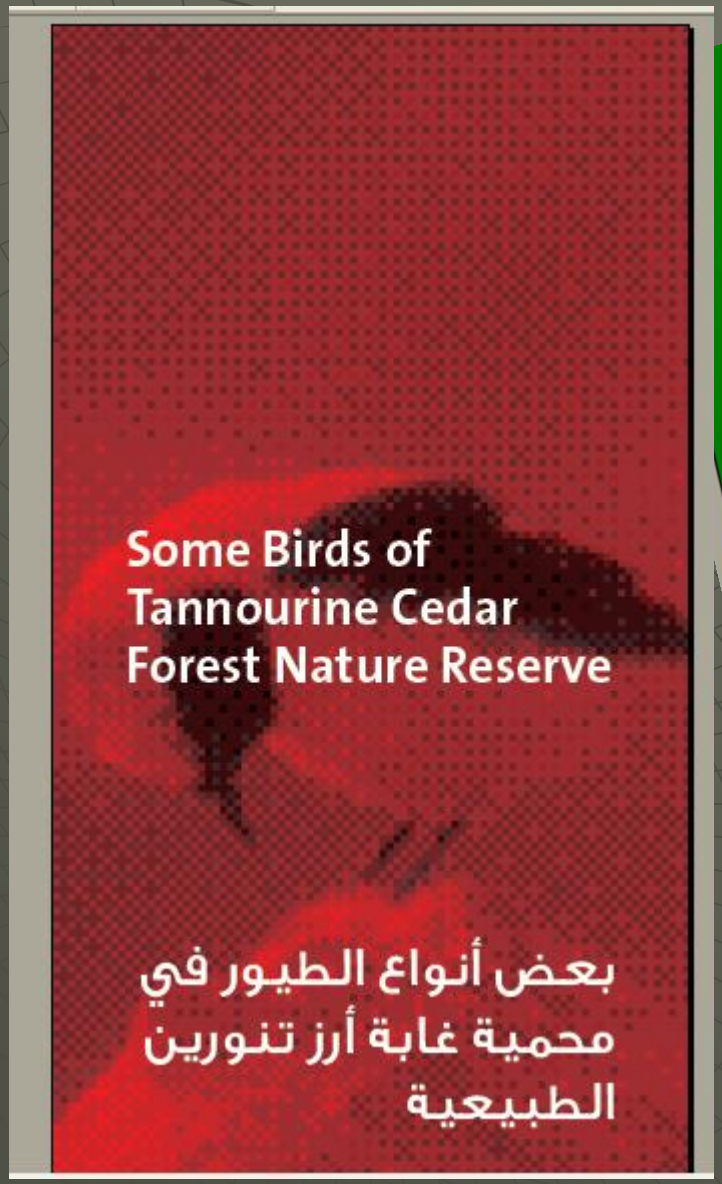


صندل الارز
Cedar Processionary Moth
Thaumetopoea libanotica
Kiriakoff and Talhouk
(Lepidoptera: Thaumetopoeidae)

خصائصها Biology

- جيل واحد في السنة
- الحشرات الكاملة تظهر في شهري آب وأيلول
- تضع الاناث البيض على الفروع أو الأغصان مجموعات
- اليرقات تعيش مجتمعة وتتغذى من إبر الارز الحديثة النمو والقديمة

Bird Cards

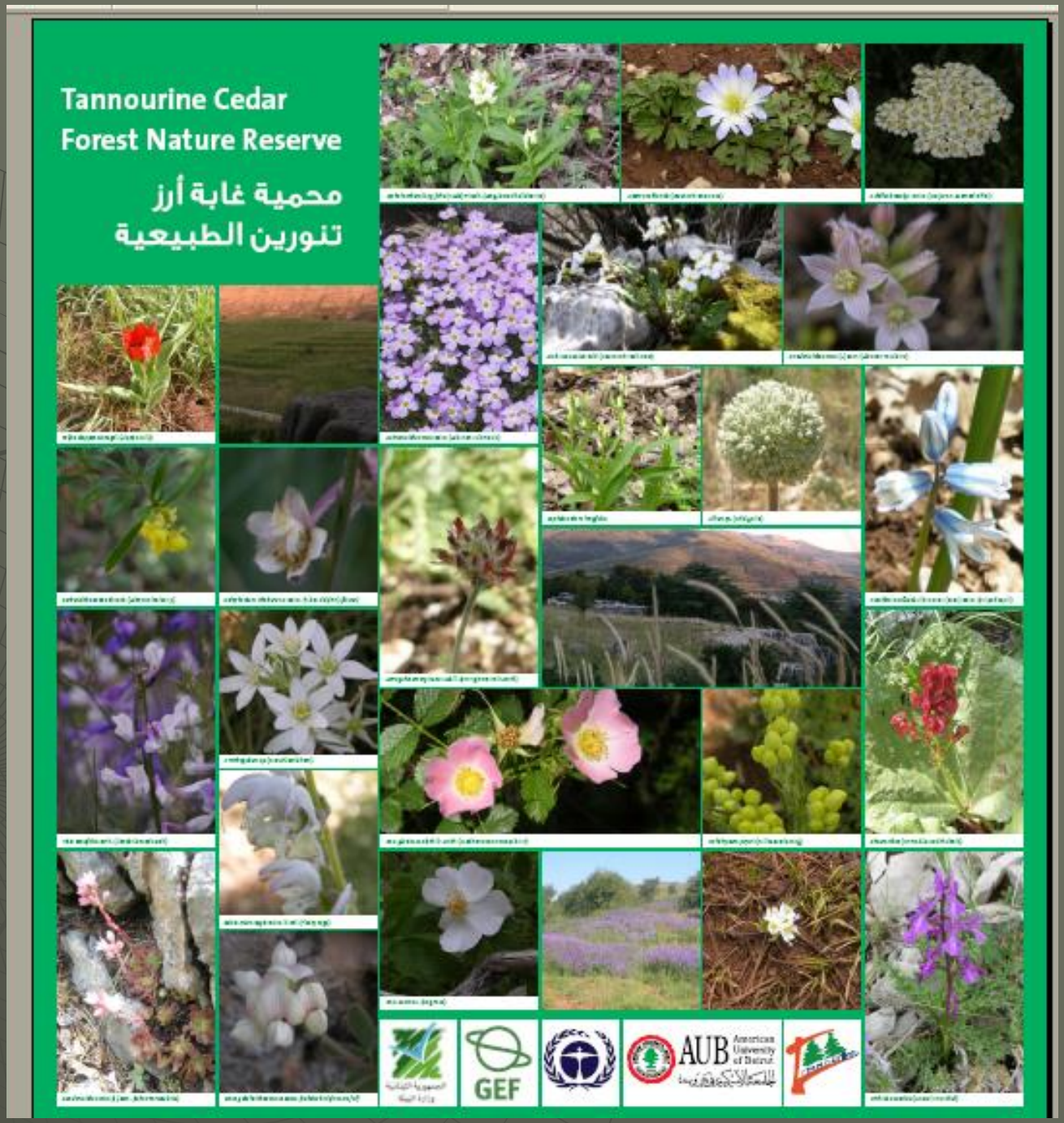

Some Birds of
Tannourine Cedar
Forest Nature Reserve
بعض أنواع الطيور في
محمية غابة أرز تنورين
الطبيعية

6.
Sylvia curruca
Lesser Whitethroat - Fauvette babillarde -
Very common summer visiting breeder in the
Tannourine Cedar Forest Nature Reserve. Its diet is
principally small insects plus some fruits.
Observation: April-September
الزريقة
الفيرانية الصغرى
يعشش هذا النوع من الطيور المهاجرة في محمية غابة أرز
تنورين الطبيعية في فصل الصيف و يتغذى على الحشرات
الصغيرة وبرقانها والفاكهة.
الاوقات المناسبة لمشاهدته: نيسان - أيلول

Poster

Tannourine Cedar
Forest Nature Reserve
محمية غابة أرز
تنورين الطبيعية
The Tannourine Cedar Forest Nature Reserve was established under Law
Number on February , . The Reserve
is managed by the Tannourine Cedar
Forest Nature Reserve Committee under
the supervision of the Ministry
of the Environment.
The area of the Tannourine Cedar Forest
Nature Reserve is hectares, and the
total area of the forest is hectares.
The elevation of the Reserve ranges
between and m above
sea level. It protections of the biggest and
dense cedar forests in Lebanon and
one of the been cedars. The unique
geography and topography of the Reserve
has sheltered the area from excessive
tourist activity.
The Tannourine Cedar Forest Nature
Reserve is rich in biodiversity. Hundreds
of plant species have so far been
recorded in the Reserve, along with
different mammals and around
species of birds and species of
butterflies and moths.
The major activities inside the Reserve
are hiking and bird watching and are
especially enjoyable because of the
tranquility of the Reserve.
GEF
AUB
American University of Beirut

Poster

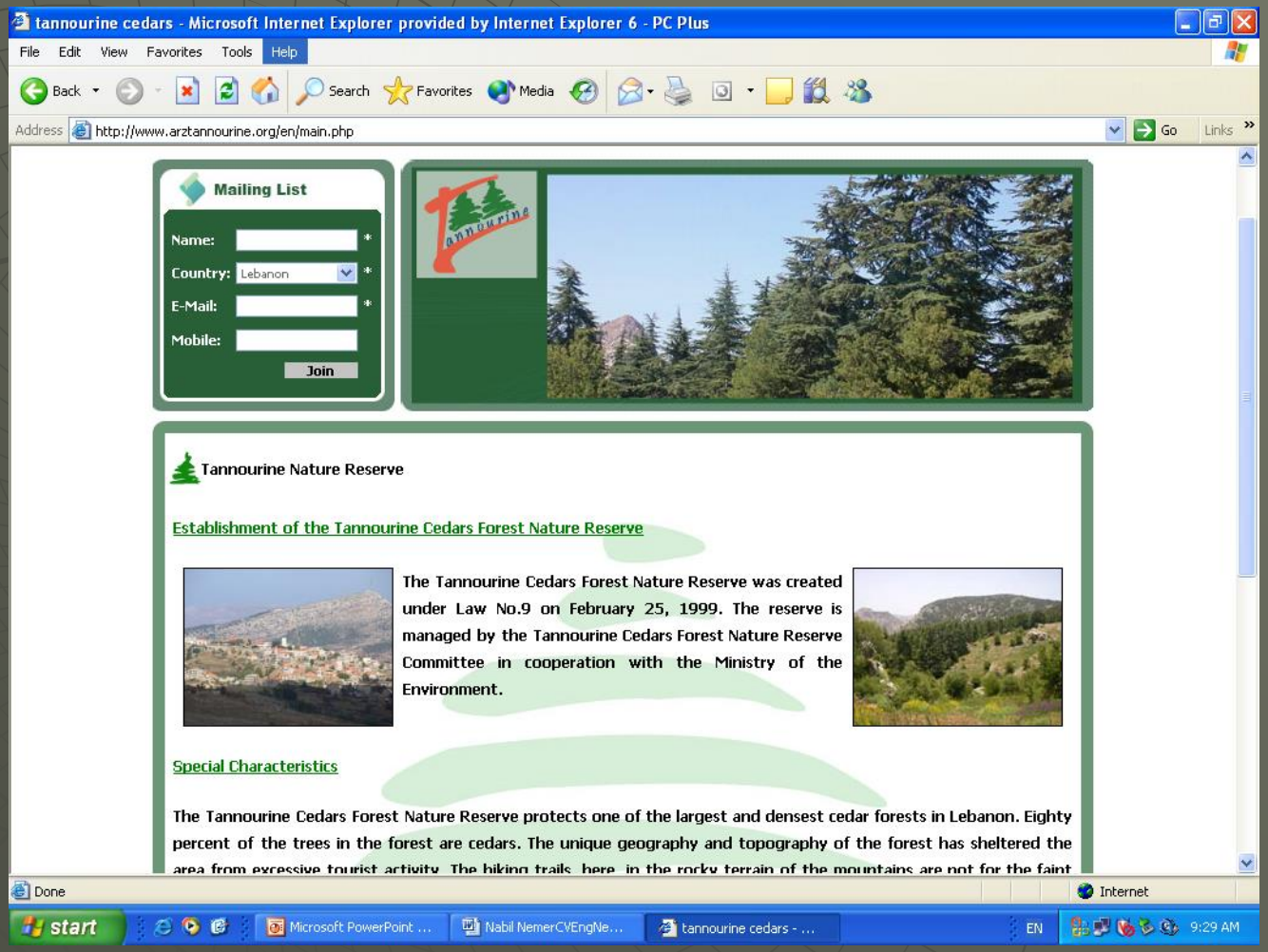

Tannourine Cedar
Forest Nature Reserve
محمية غابة أرز
تنورين الطبيعية
GEF
AUB

Poster

Mushrooms of the
Tannourine Cedar
Forest Nature Reserve
الفطر في محمية غابة
أرز تنورين الطبيعية
GEF
AUB

K. Website

- www.arztannourine.org



Challenges

- War 2006
- Political Crisis
- Resignation of The Minister of Environment
- Resignation of Staff members
- Financial : Cost sharing

Sustainability/ Future Needs:

- GEF/UNEP Tannourine Project, has provided within its limited capacity, all the necessary ingredients to achieve a successful conservation of the Cedar Forests, however the following are needed to sustain the achievements:
  - Proactive site management –follow up ✓✓
  - Continued collaboration/support of all stakeholders ✓✓
  - Continued awareness raising and capacity building ✓✓ ✓
  - Continued ecological monitoring for sound management decisions ✓✓ ✓✓
  - International marketing for the site ✓✓

Sustainability

- Financial sustainability
  - Reserves should initiate more self funding activities
    - (Selling of Local produce, booklets…, Activity based donations) ✓✓ ✓✓
    - Finalization the framework law on Nature Reserves ✓
  - International Donor
    - New projects proposals ✓✓ ✓✓

(3 medium sized projects were implemented so far with an amount of 3,000,000 USD and 12 small size projects with a total amount of 160,000 USD)

Financial budgets for Reserves should be given in due time. ✓✓

Lessons Learned

- Management planning process
- Involvement of Local community in all stages of planning process
- Improved project cycle management experience
- Emphasis on team work in all activities

Lessons Learned

- Integration of the project within the executing government agency ensures smooth and proper management of site
- Mechanisms to sustain the trained and qualified staff
- Continuous and progressive training program

Lessons Learned

Coordination between the different government, private and international institutions and sectors, and creating partnerships are the basis of success