

# Current situation of *Leptoglossus occidentalis* in Turkey

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Coordinator



Partners



**Forestas**

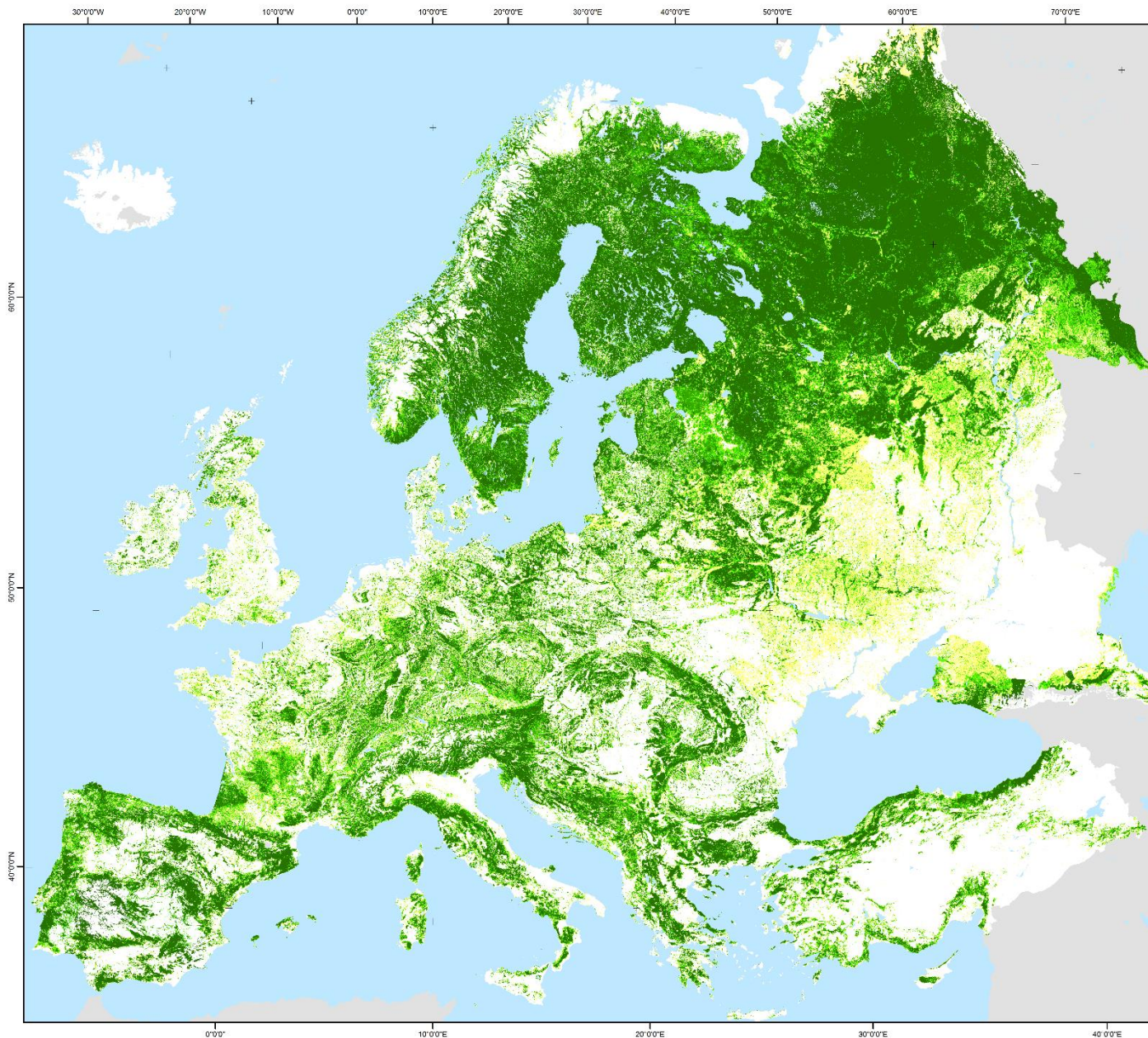
Agencia forestal regional pro sviluppo territorio e de ambiente de sa Sardegna  
Agencia forestal regional pro lo sviluppo territorio e dall'ambiente della Sardegna



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 774632

*Wild harvested nuts and berries in time of new pests, diseases and climate change*  
Interregional Workshop, Palencia, June 12-14, 2019

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**FOREST MAP OF EUROPE**  
(geographical Europe and Turkey)

Proportion of forest from land area  
(% at 1km x 1km resolution)

- 0 - 10
- 11 - 25
- 26 - 50
- 51 - 75
- 76 - 100
- Water
- No data

0 250 500 750  
Kilometers

ETRS89 Lambert Azimuthal Equal Area projection

**Data sources**

**Earth observation data:**

EU27, AL, BA, CH, HR, ME, MK, NO, RS, TR: Forest/non-forest map 2006 (beta version) developed by the EC Joint Research Centre, aggregated to 1km resolution. Based on IRS-P6 LISS-III, SPOT4 (HRVIR) and SPOT5 HRG satellite data of 2006.

Belarus, Moldova, Ukraine, Russian Federation: Forest share estimates based on AVHRR NOAA satellite data of 1996-1998.

**Statistical data:**

National forest inventory statistics  
State of Europe's Forests country statistics 2011

**Method**

Two different earth-observation products (Kempeneers et al. 2011, Päivinen et al. 2001/Schuck et al. 2002) have been combined with statistical data to produce a pan-European forest map that corresponds to the official forest inventory statistics at national and/or regional level. The satellite-based forest cover data was first calibrated to sum up to the forest area statistics within a given administrative region. For 19 countries (including the Russian Federation) regional statistics were utilized during the calibration, while for the other countries statistics at national level have been applied. In a second calibration run, the map was adjusted to the internationally harmonized statistics by Forest Europe 2011 at national level, to allow for comparability between the countries.

**Further details:**

[www.efi.int/portal/virtual\\_library/information\\_services/mapping\\_services/forest\\_map\\_of\\_europe](http://www.efi.int/portal/virtual_library/information_services/mapping_services/forest_map_of_europe)

**References**

Kempeneers, P., Sedano, F., Seebach, L., Strobl, P., San-Miguel-Ayanz, J. 2011: Data fusion of different spatial resolution remote sensing images applied to forest type mapping. IEEE Transactions on Geoscience and Remote Sensing, in press.

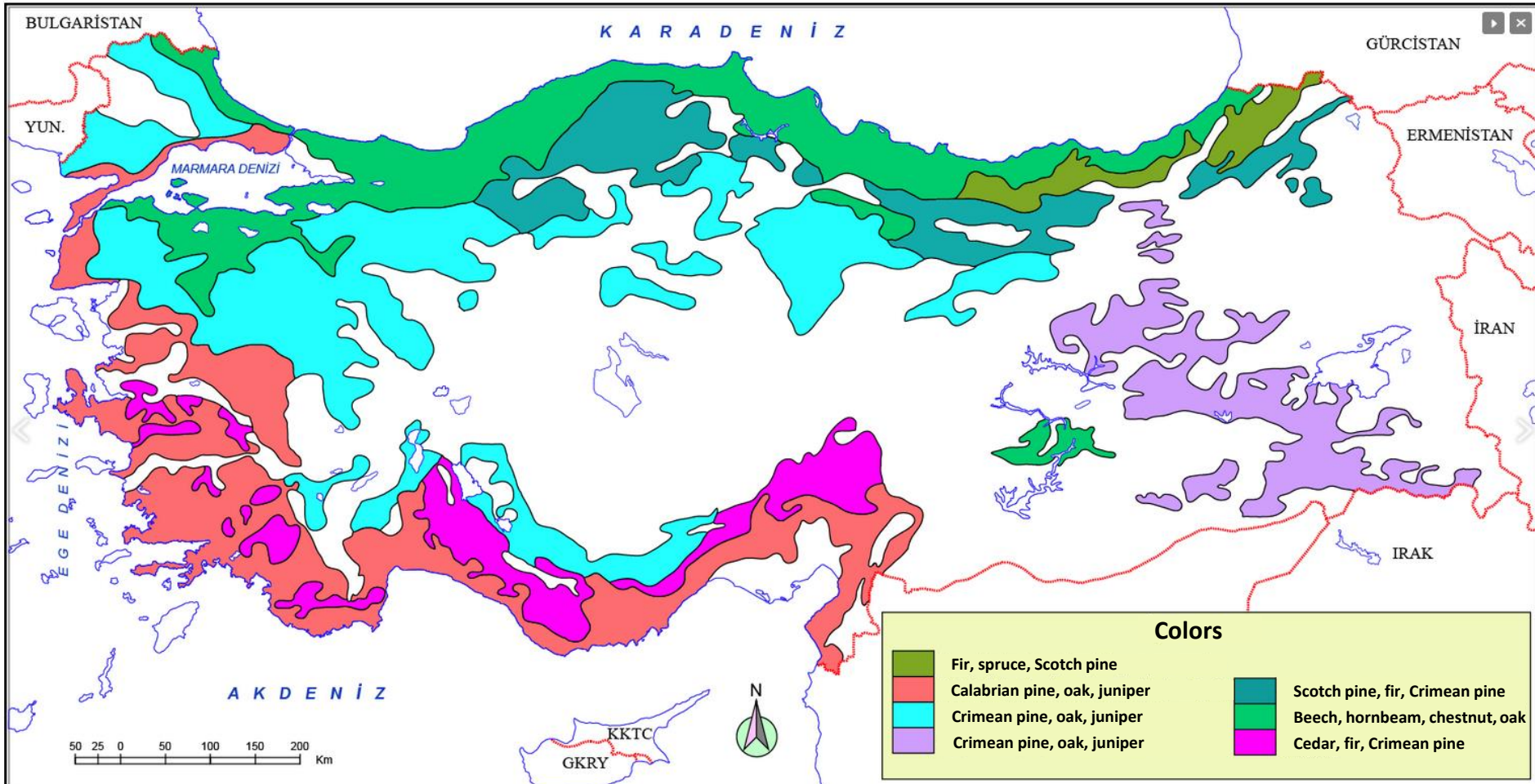
Päivinen, R., Lehtikoinen, M., Schuck, A., Häme, T., Väättäinen, S., Kennedy, P. and Folving, S. 2001. Combining Earth Observation Data and Forest Statistics. EFI Research Report 14. European Forest Institute and Joint Research Centre - European Commission.

Schuck, A., Van Brusselen, J., Päivinen, R., Häme, T., Kennedy, P. and Folving, S. 2002. Compilation of a calibrated European forest map derived from NOAA-AVHRR data. EFI Technical Report 13, European Forest Institute.

Contact: [efsec@efi.int](mailto:efsec@efi.int)

European Forest Institute / EC Joint Research Centre  
September 2011

# Forests of Turkey



Kaynak: H. GÖKMEN 1962

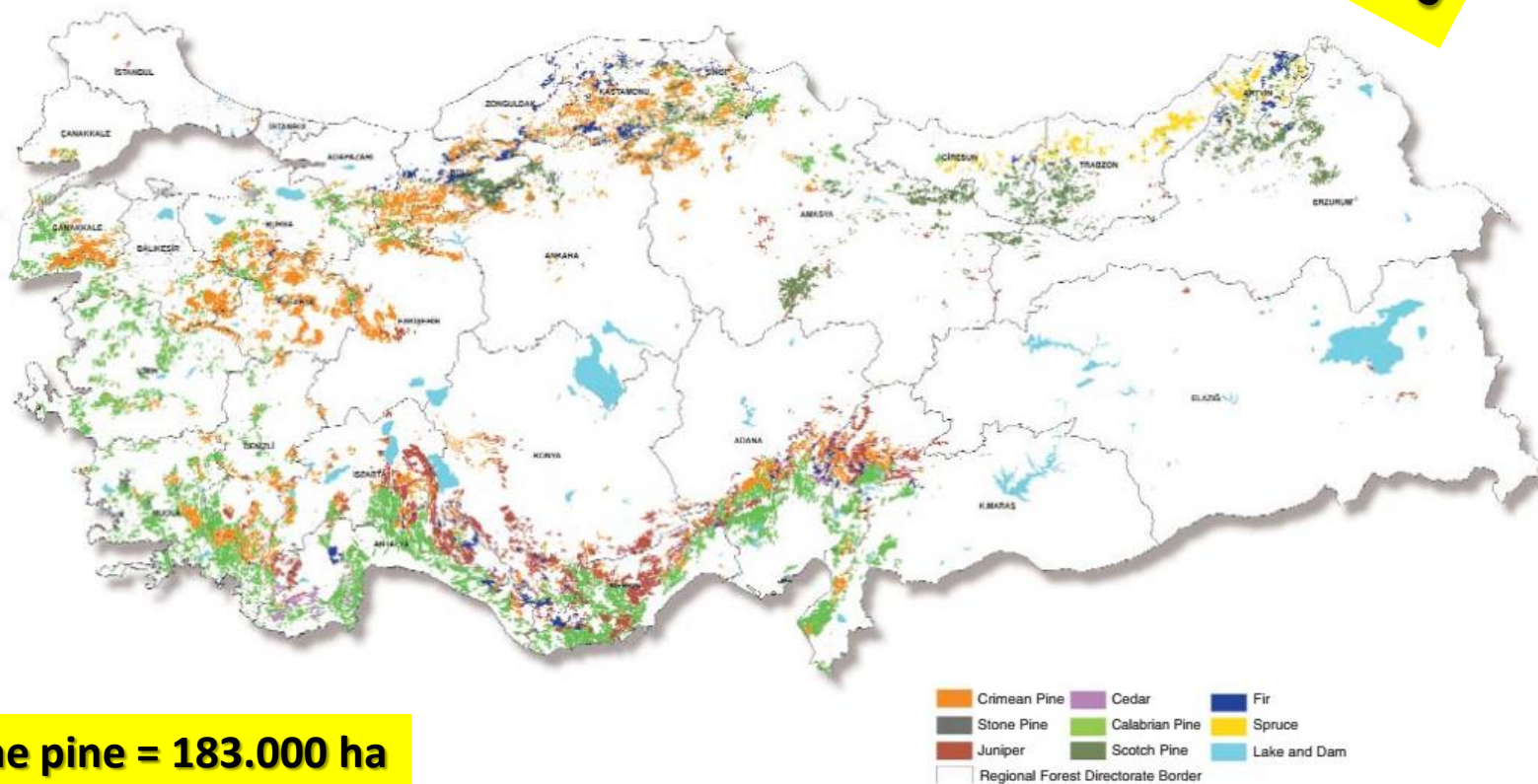
TÜRKİYE ORMAN ÖRTÜSÜ HARİTASI

cografyaharita.com R.SAYGILI 2016

# Conifers of Turkey

12.926.065 ha

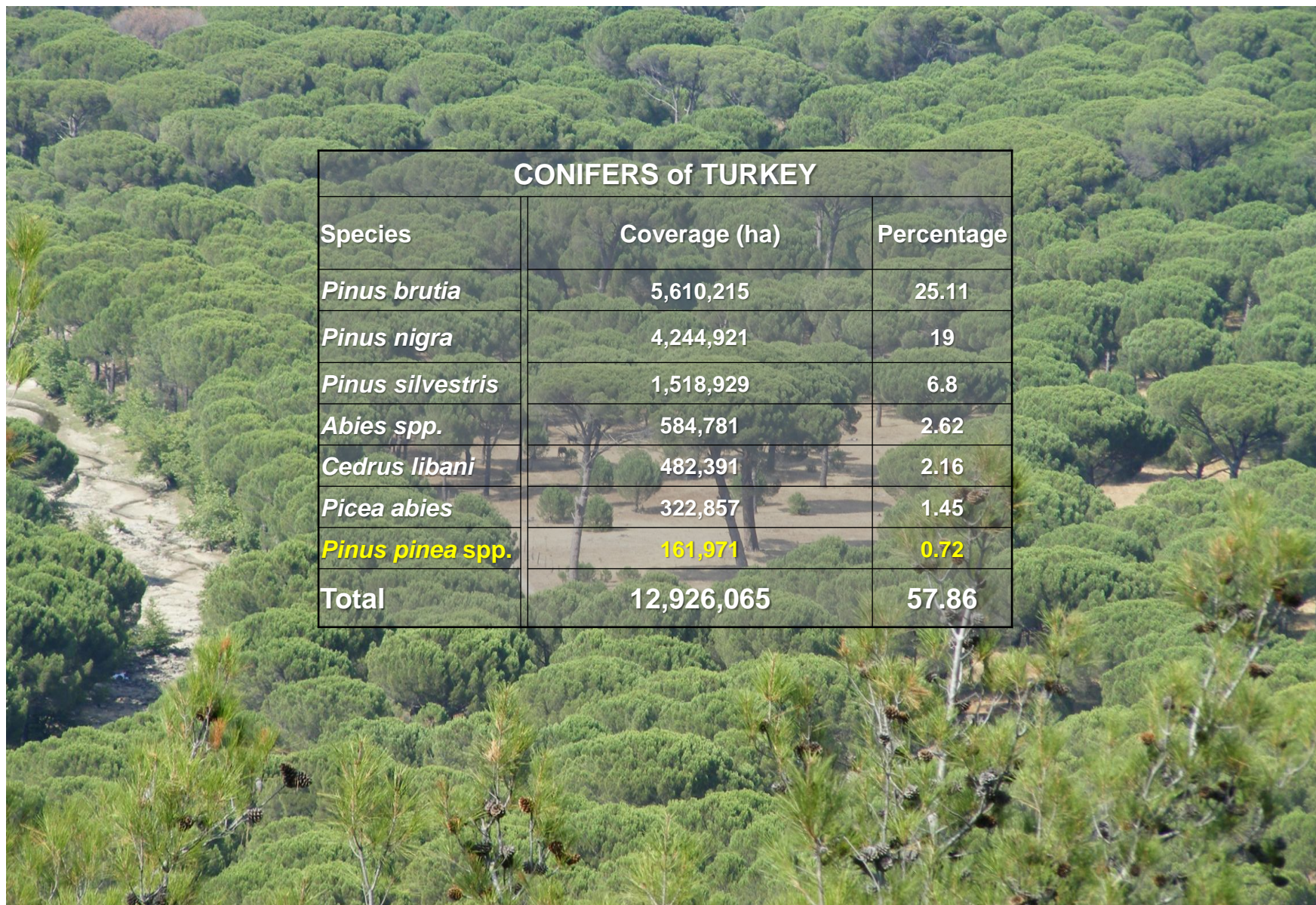
57%



Stone pine = 183.000 ha



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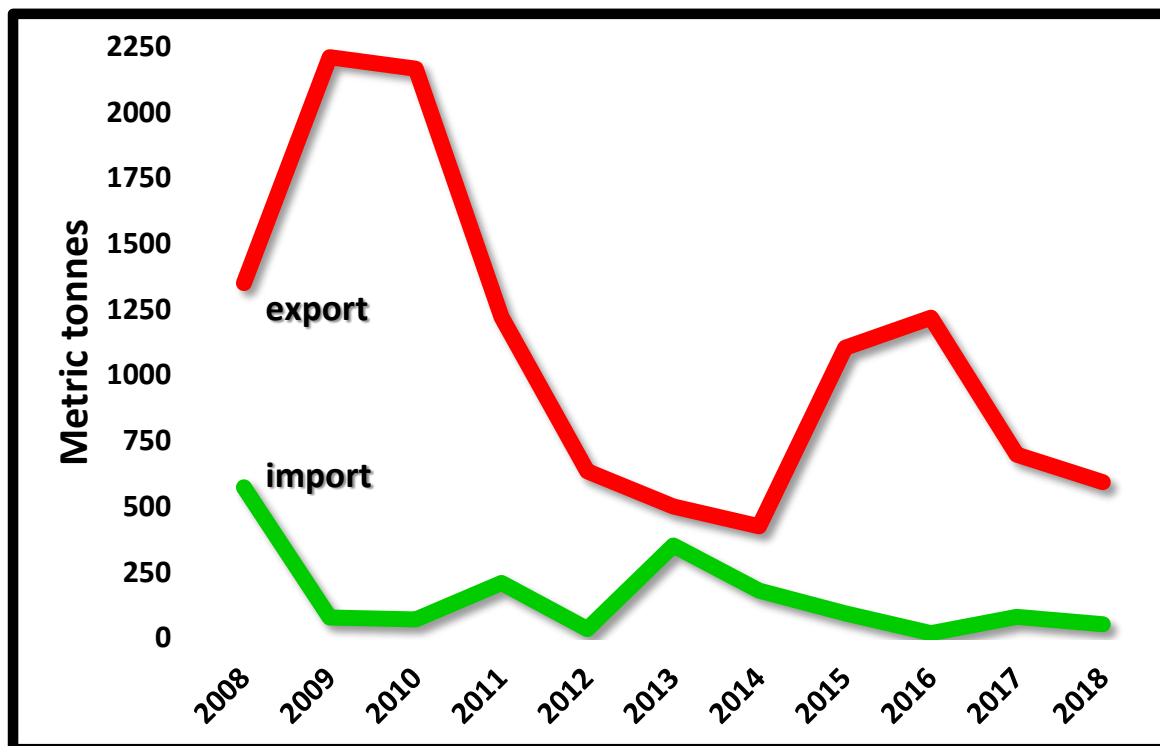


CONIFERS of TURKEY		
Species	Coverage (ha)	Percentage
<i>Pinus brutia</i>	5,610,215	25.11
<i>Pinus nigra</i>	4,244,921	19
<i>Pinus silvestris</i>	1,518,929	6.8
<i>Abies spp.</i>	584,781	2.62
<i>Cedrus libani</i>	482,391	2.16
<i>Picea abies</i>	322,857	1.45
<i>Pinus pinea spp.</i>	161,971	0.72
<b>Total</b>	<b>12,926,065</b>	<b>57.86</b>

# Pine nut production in Turkey



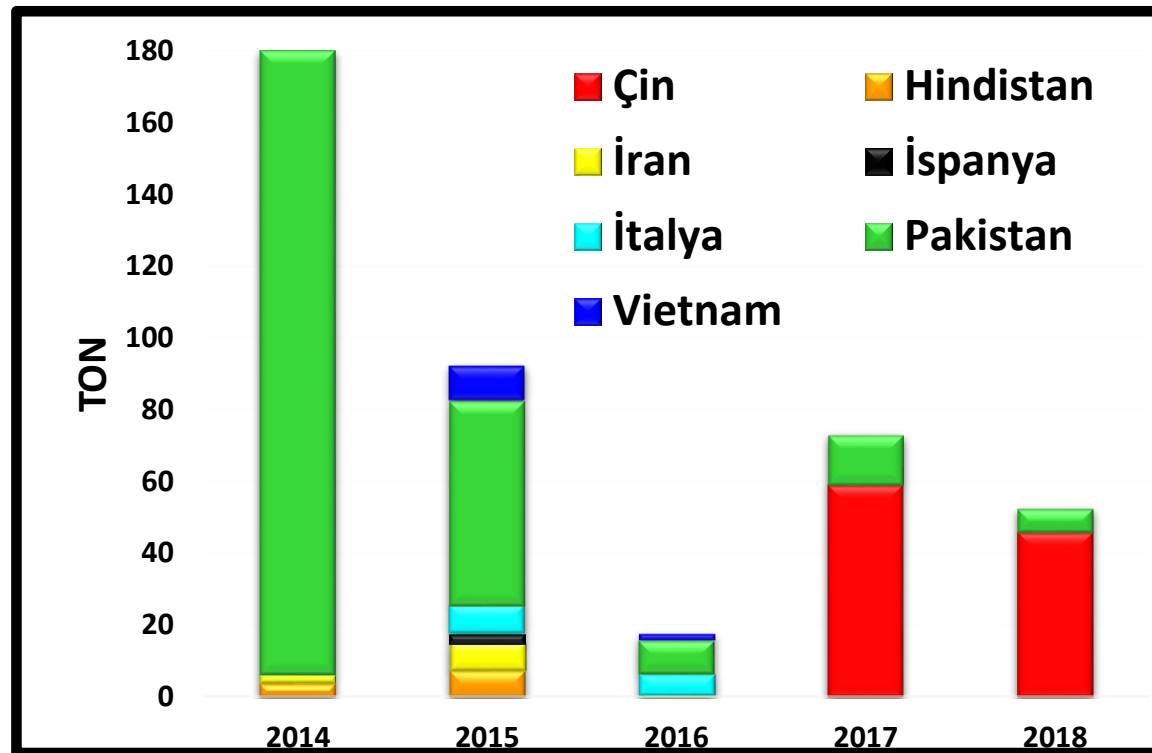
# Pine nut production in Turkey



Turkish Statistical Institute



# Pine nut production in Turkey



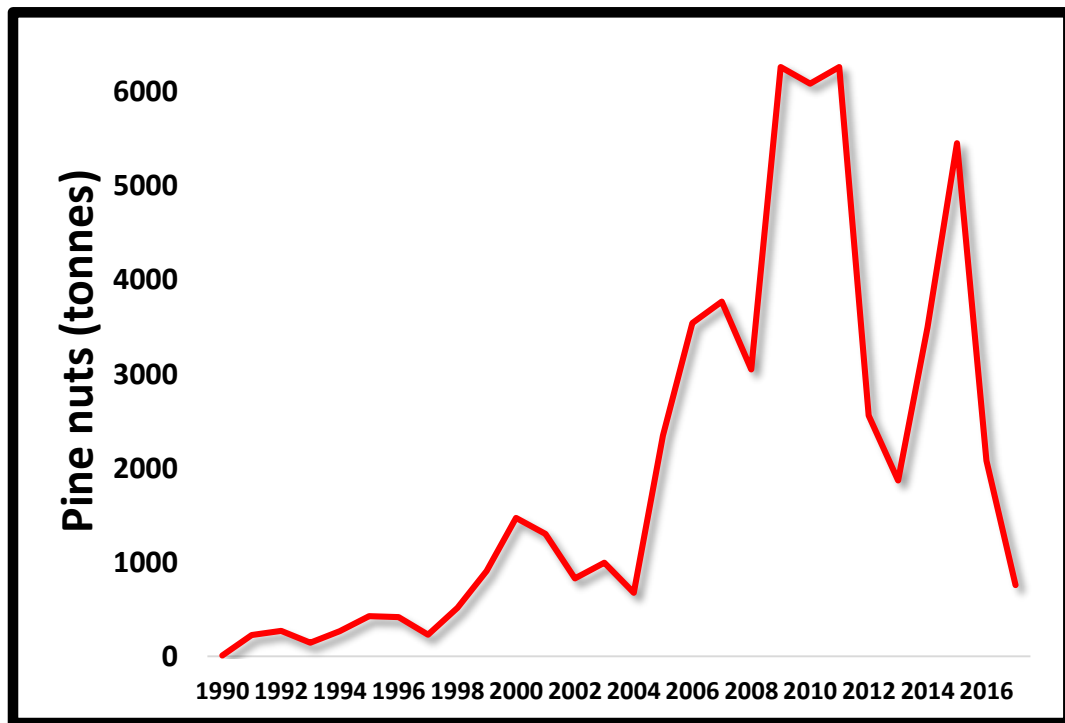
Turkish Statistical Institute





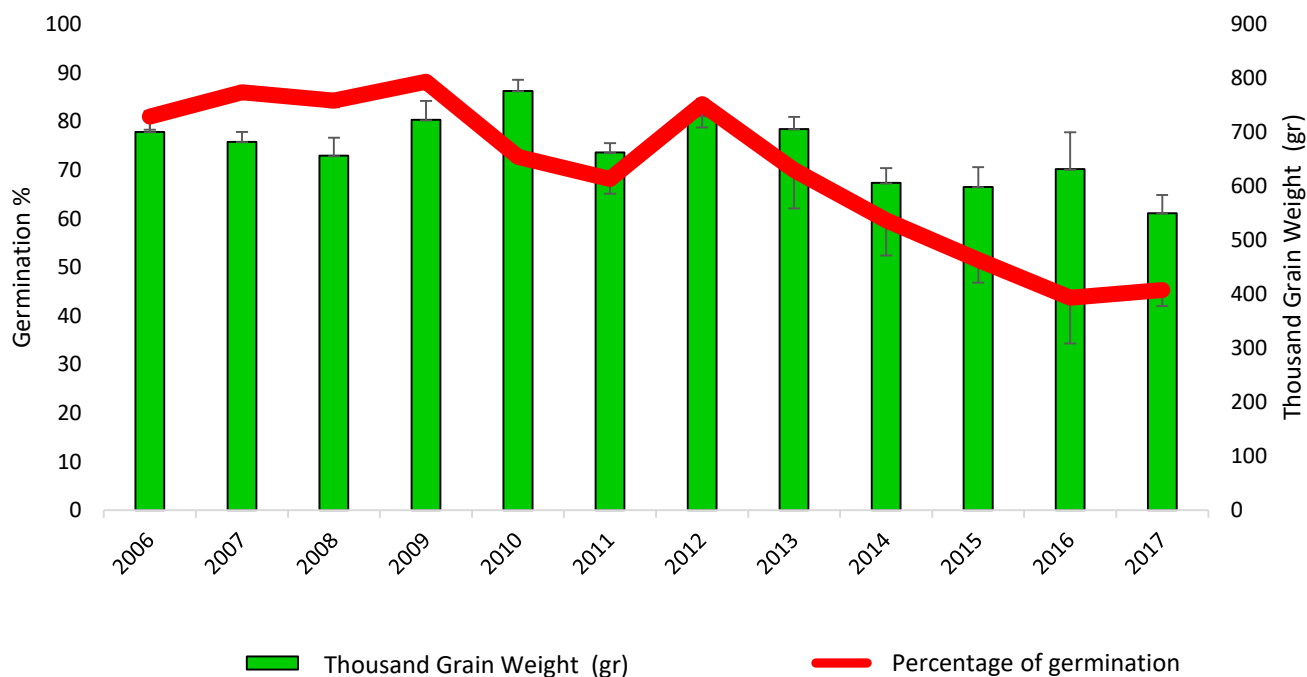
# Pine nut production in Turkey

**Bergama-Kozak**



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# Pine nut production in Turkey



# Pine nut production in Turkey

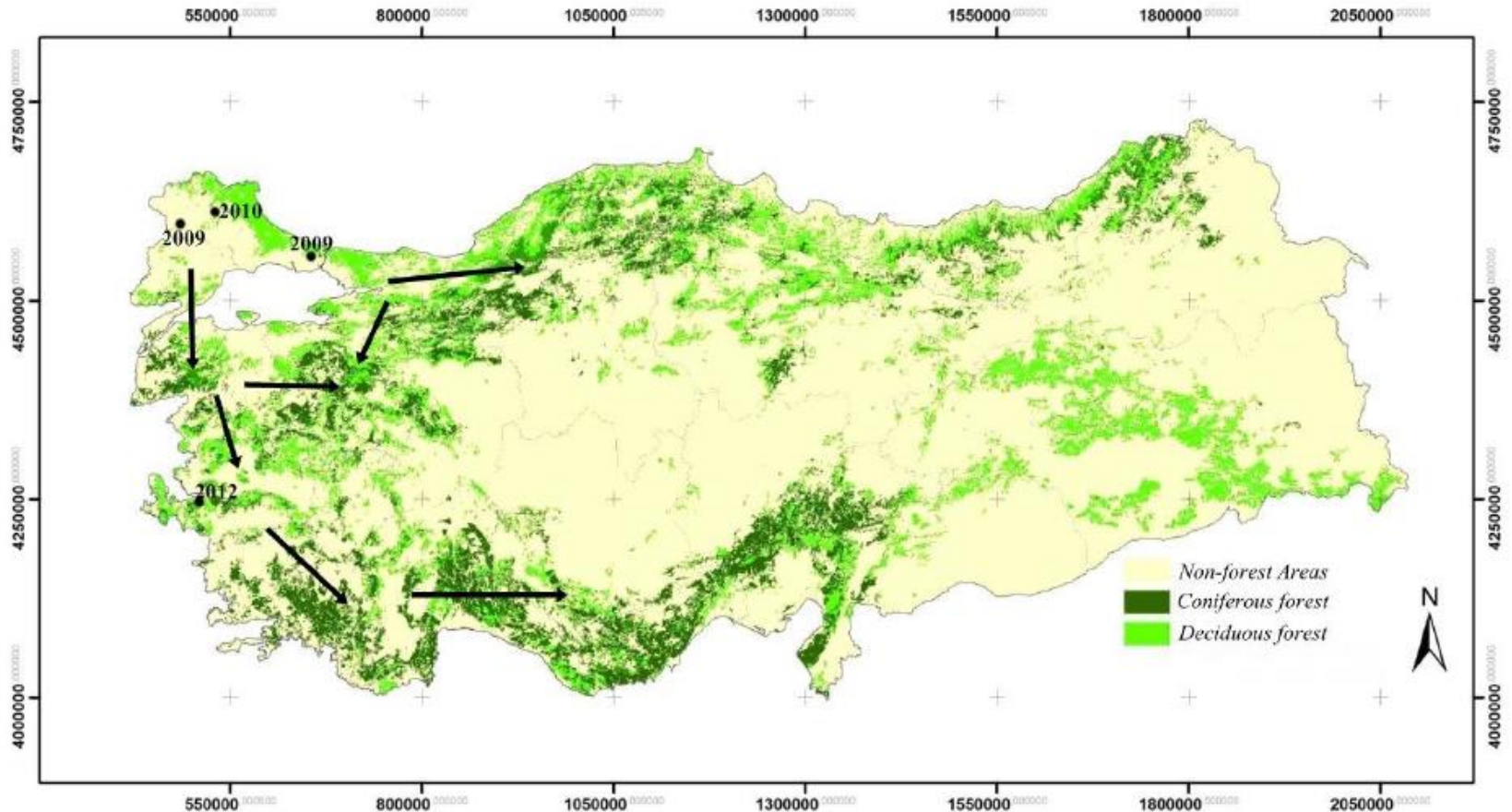
**Bergama-Kozak**



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# *L. occidentalis* in Turkey



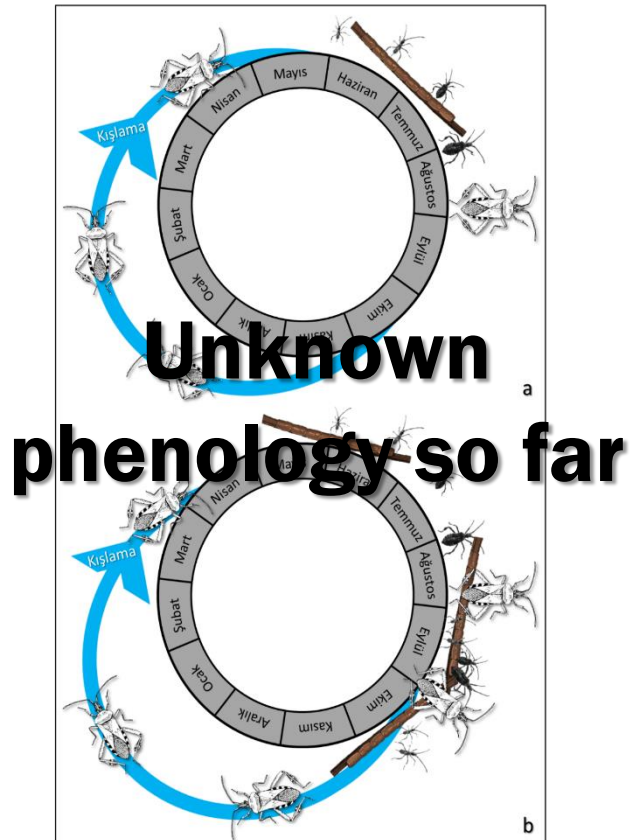


# *L. occidentalis* in Turkey





# *L. occidentalis* in Turkey





# *L. occidentalis* in Turkey



# Projects of the Turkish General Directorate of Forestry

**150.000 €**

**3 years**

**Starting in 2019**



**köklerinde** hayat var...



# Projects of the Turkish General Directorate of Forestry

## 1. Determining pollination biology of *Pinus pinea* and ecological-stress induced terpene compounds

This study will focus on pollen health and pollination issues and effects of factors influencing defensive mechanisms of trees on poor yield.

**köklerinde** hayat var...

# Projects of the Turkish General Directorate of Forestry

## 2. Determining cone-rot fungi on *P. pinea*, their ways of transmission, and control possibilities

This study will focus on determining cone-rot fungi in soil, air and cones.

**köklerinde** hayat var...

# Projects of the Turkish General Directorate of Forestry

## 3. Biological control of *L. occidentalis*

This study will focus on effects of *Ooencyrtus pityocampae* and *Beauveria bassiana* against western conifer seed bug.

**köklerinde** hayat var...

# Projects of the Turkish General Directorate of Forestry

## 4. Electrostatic applications to improve cone and seed yield in *P. pinea*

This study will focus on measuring efficiency of electrostatic spraying methods to be used in order to improve pollination and prevent conelet abortion.

**köklerinde** hayat var...

# Projects of the Turkish General Directorate of Forestry

## 5. Determining the distribution and biology of *L. occidentalis* and its potential as vector of pathogenic fungi in Turkey

This study will focus on determining the distribution and biology of the western conifer seed bug in different regions of Turkey. This study will also look for plant-pathogenic fungi that could be transmitted by the bug.

# Projects of the Turkish General Directorate of Forestry

## 6. Developing thermal traps against *L. occidentalis*



This study will focus on developing thermal traps and determining efficiency of these traps.

**köklerinde** hayat var...

# Projects of the Turkish General Directorate of Forestry

## 7. Developing chemical strategies against *L. occidentalis*



This study will focus on developing chemical strategies that could be used in *P. pinea* orchards.

**köklerinde** hayat var...

# Projects of the Turkish General Directorate of Forestry

## 8. Determining empty seed formation in conifers and its distribution in Turkey

This study will focus on empty seed formation in 8  
coniferous species in Turkey and on how *L.  
occidentalis* contributes to empty seed formation.

**köklerinde** hayat var...



# Projects of the Turkish General Directorate of Forestry

## 9. Determining effects of *L. occidentalis* on *Pinus* species in the Eastern Mediterranean Region of Turkey

This study will focus on effects of *L. occidentalis* on  
eastern Mediterranean pines.

**köklerinde** hayat var...

# Projects of the Turkish General Directorate of Forestry

## 10. Determining effects of irrigation and fertilization on *P. pinea* seed yield

This study will focus on irrigation and fertilization in *P. pineae* orchards and their effects of seed production.

**köklerinde** hayat var...



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