

# Geographic Information Systems (GIS) as a tool to provide environmental information to the public and to monitor the efficiency of the relevant public services



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The LIFE14/GIE/GR/000026 project is funded at a percentage of 60% from the LIFE financial instrument "Environmental Governance & Information" of the European Commission



# Main goal / Plan of the presentation

**GOAL:** To demonstrate the use of GIS as a tool to provide environmental information to the public and to monitor the efficiency of the relevant public services (the case of Crete)

## **PLAN:**

1. Greek reality regarding real access to environmental information
2. The LIFE 14/GIE/GR/000026 Project and the Environmental Law Observatories of Crete
3. LIFE NATURA THEMIS' GIS map for offences tackled by public services
4. LIFE NATURA THEMIS' GIS map for public complaints
5. Important conclusions



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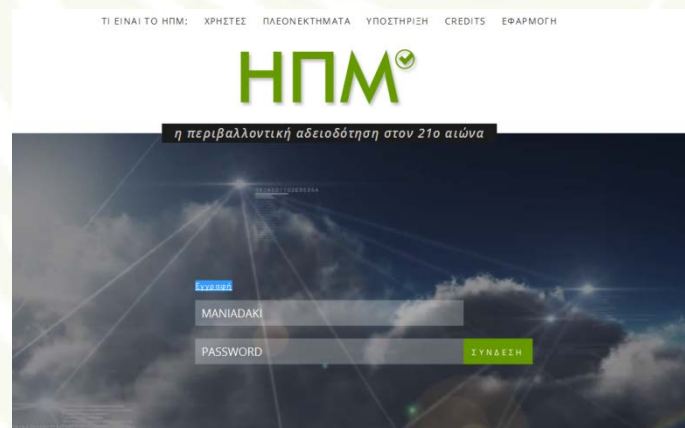


# Greek reality regarding real access to environmental information

According to WWF's report of 2016 regarding the implementation of environmental law in Greece, Greece has completely failed to provide environmental information through electronic data bases. The purpose of this policy is to prevent citizens from participating actively in environmental matters.

It is also remarkable that Greece is rated on the second position for open environmental court cases in front of the Court of Justice of the European Union.

No activation of Electronic  
Environmental Register yet!



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# Realization of the idea to establish an Environmental Law Observatory in order to provide information to the public-

## The LIFE14/GIE/GR/000026 Project, 2015-2020

(Promoting awareness of wildlife crime prosecution and liability  
for biodiversity damage in NATURA 2000 areas in Crete)

- **Themis in mythology is a Titan gifted with a legislative power.** As child of Uranus and Gaia, Themis is meant to be the protector of law on sky and earth punishing any infringement thereon.
- Contractor of the project is the University of Crete - Natural History Museum of Crete and the partners are, SYGAPEZ, the Greek Nature Protection Society (EPPF), the Bar Association of Chania as well as the Heraklion Bar Association.

Among the **key objectives of LIFE NATURA THEMIS project** are:

- To provide electronic, accurate and objective environmental information to the public with emphasis to the NATURA 2000 areas
- To familiarize prosecutors, interrogative authorities and related public services with the competencies and the protection status of the protected (NATURA 2000) areas.
- The development of the necessary skills of interrogative clerks in order to prevent and effectively prosecute environmental crime

**The realization of these objectives is based on the primary material first time gathered** in cooperation with the competent authorities and local residents, **by the two Environmental Law Observatories.**

The material is accessible to the public, on the official website of the project and is depicted on **2 GIS MAPS.**



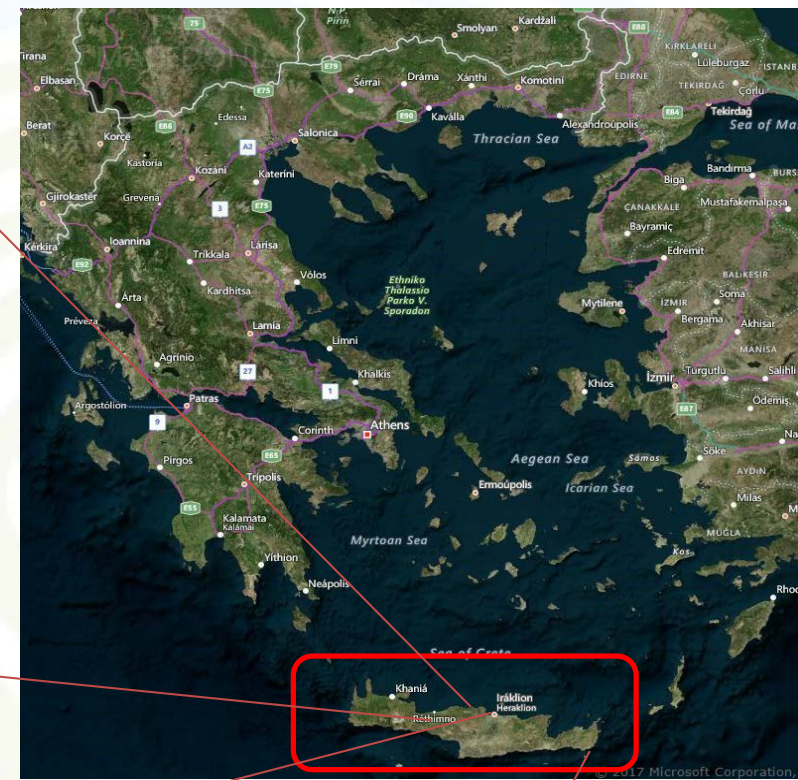
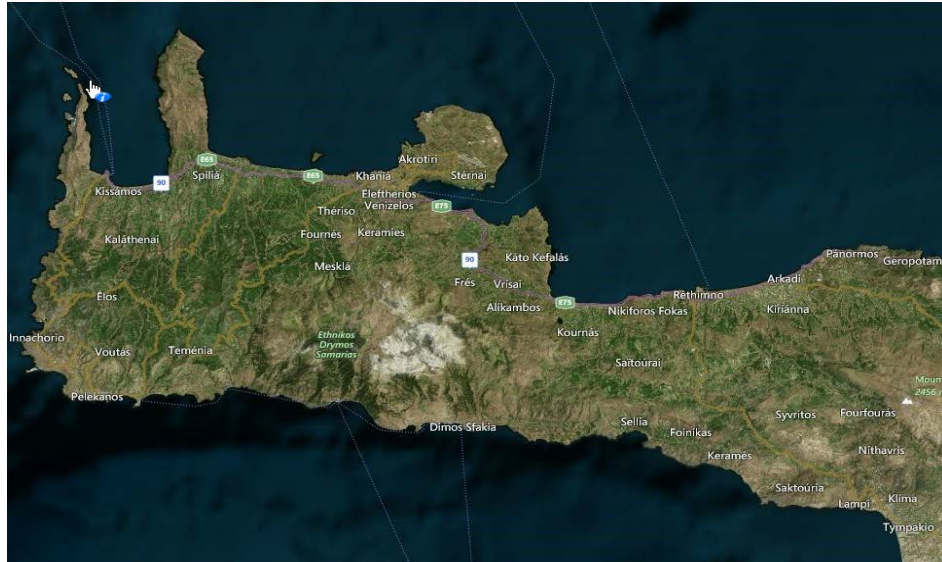
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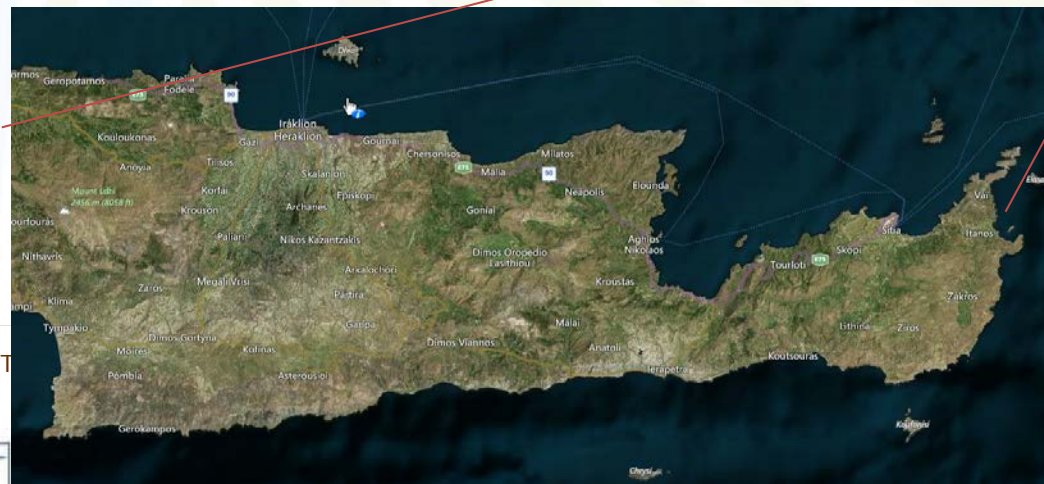


# Crete in Greece



## West Crete

## East Crete



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THEMIS

Ministry of  
Crete



Heraklion Bar Association

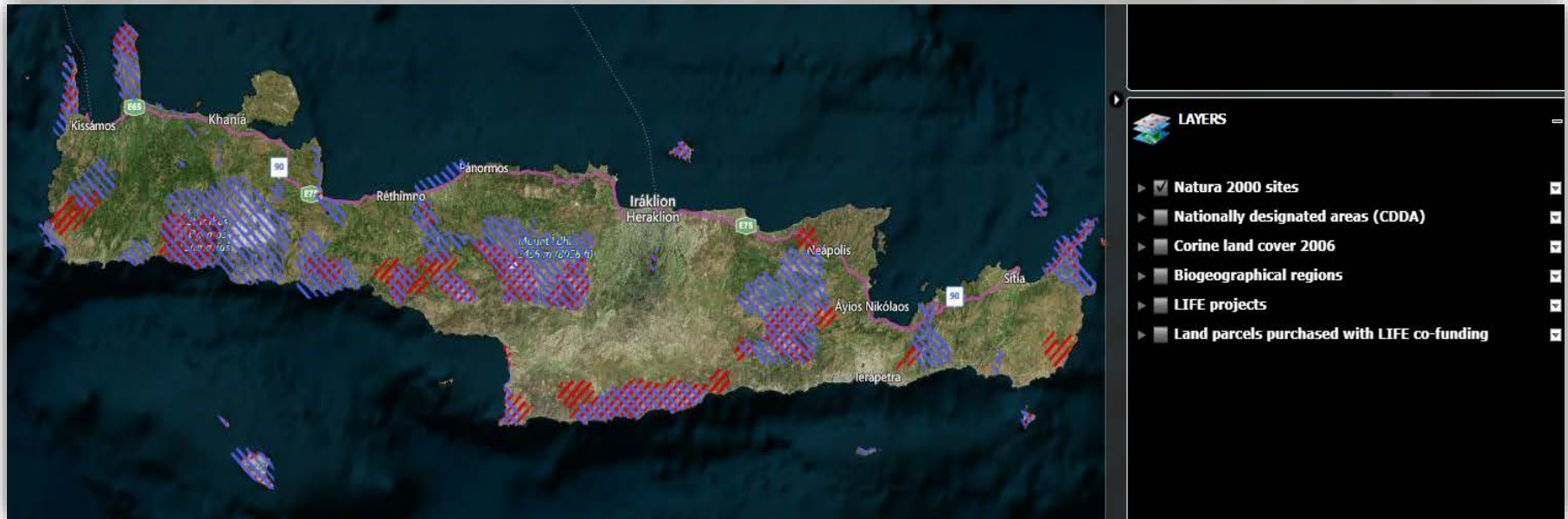
Ministry of  
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# Why in Crete?



30 % of the total area of Crete belongs to  
NATURA 2000 network (53 protected areas)



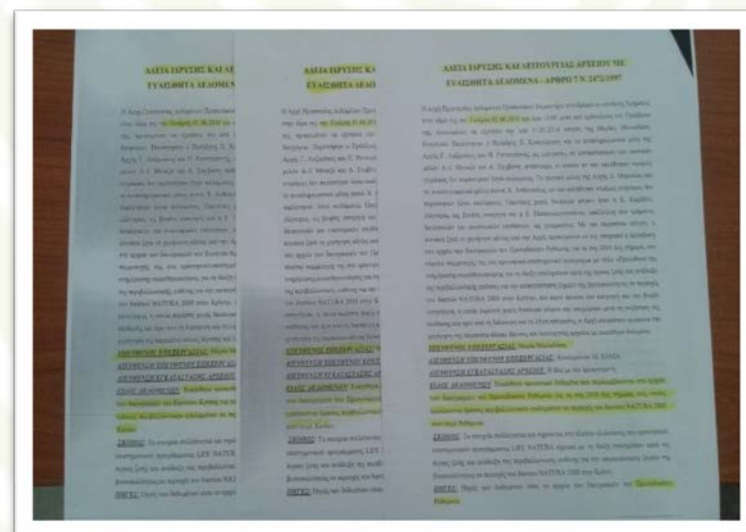
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# The unique characteristics of the Environmental Law Observatories of Crete

1. Independent operation, objective information
2. Record and analysis of Penal Environmental Court Cases and the imposed Administrative Fines, regarding the respective regions, with emphasis on NATURA 2000 areas
3. Import of collected data in a geo-informatics (GIS) map, accessible to the public, through the project' s website (<http://www.lifethemis.eu>)



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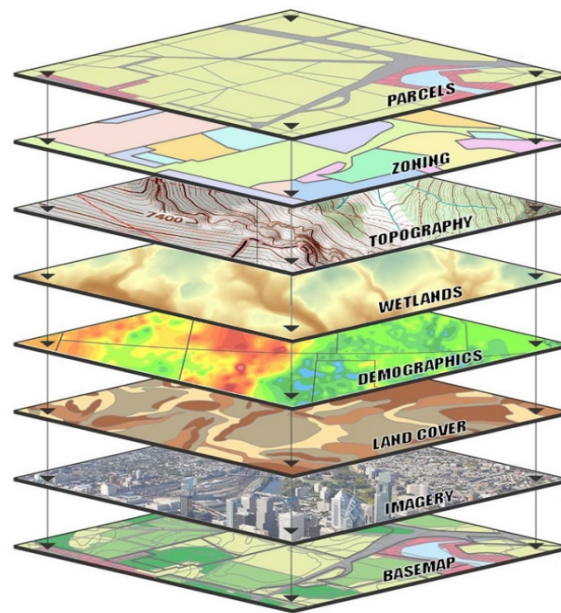






# Defining Geographic Information Systems (GIS)

- A powerful *set of tools* for collecting, storing, retrieving, transforming, and displaying spatial data from the real world. (Burroughs, 1986)



## GIS DATA LAYERS

Many different types of data can be integrated into a GIS and represented as a map layer.

Examples can include: streets, parcels, zoning, flood zones, client locations, competition, shopping centers, office parks, demographics, etc.

When these layers are drawn on top of one another, undetected spatial trends and relationships often emerge. This allows us to gain insight about relevant characteristics of a location.

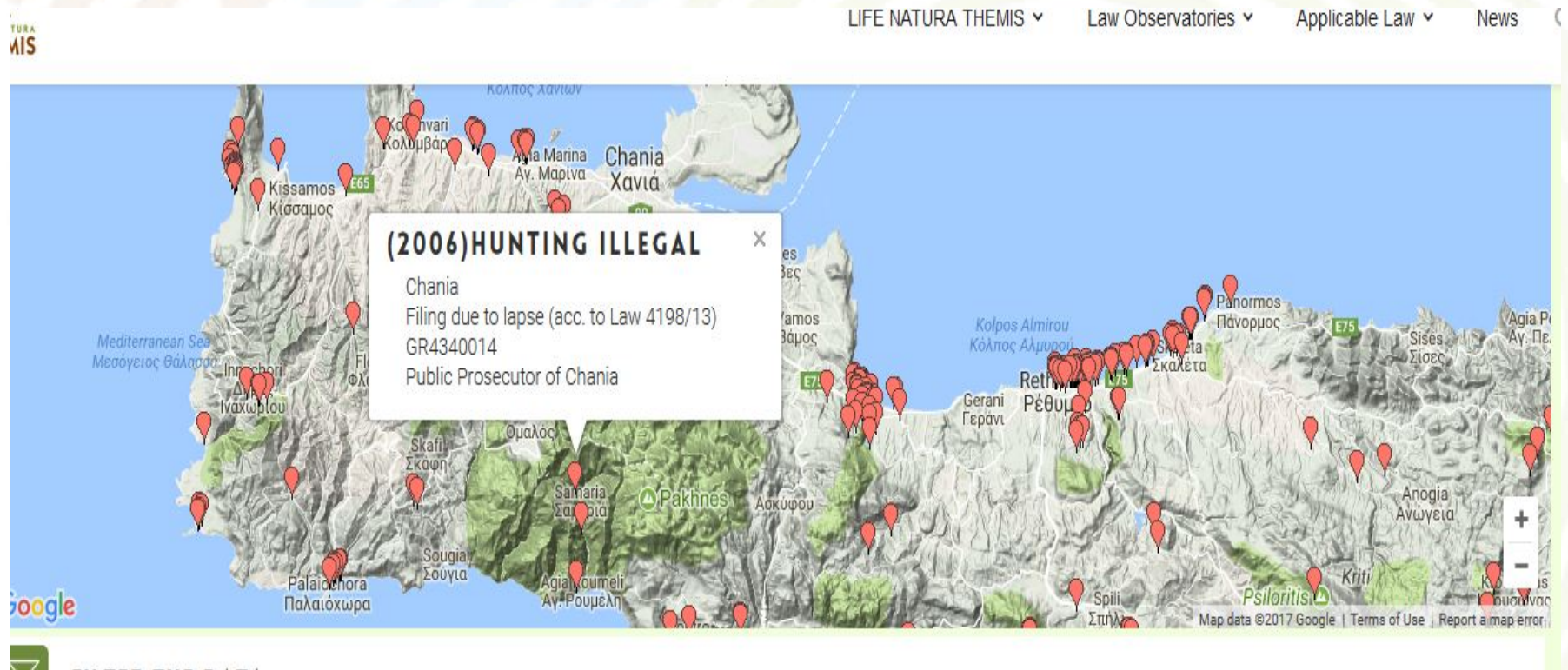


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# 1. LIFE NATURA THEMIS' GIS MAP for offences tackled by public services



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# GIS map's search filters



## FILTER THE DATA

Choose a combination of criteria and press 'Apply' to filter the data.

### ▼ County

Select All

- ☐ Chania
- ☐ Heraklion
- ☐ Λασιθι
- ☐ Ρέθυμνο

### ▼ Type

Select All

- ☐ Conflagration
- ☐ Crime against wildlife
- ☐ Grazing illegal
- ☐ Hunting illegal
- ☐ Illegal economic activity
- ☐ Logging illegal
- ☐ Marine environment degradation
- ☐ Oil factory sewage
- ☐ Poison baits
- ☐ Road construction
- ☐ Seashore degradation
- ☐ Soil degradation
- ☐ Stone pit illegal
- ☐ Surface water degradation
- ☐ Unauthorized construction
- ☐ Waste dumping
- ☐ Illegal land clearing

### ▼ Complaint status

Select All

- ☐ Acquittal-Not guilty
- ☐ Appeal
- ☐ Conviction-Guilty
- ☐ Criminal prosecution
- ☐ Filing due to lapse (acc. to Art. 43 Penalty Procedure)
- ☐ Filing due to lapse (acc. to Law 4198/13)
- ☐ Filing due to unknown perpetrators
- ☐ Fine between 1,001 - 5,000 €
- ☐ Fine between 10,001 - 20,000 €
- ☐ Fine between 5,001 - 10,000 €
- ☐ Fine over 20,000 €
- ☐ Fine up to 1,000 €
- ☐ Preliminary investigation
- ☐ Prosecution stop
- ☐ Punish by fine
- ☐ Remediation of environmental goods
- ☐ Unknown status

### ▼ Year

Select All

- ☐ 2015 and later
- ☐ 2014
- ☐ 2013
- ☐ 2012
- ☐ 2011
- ☐ 2010 and earlier

Εφαρμογή

## RESULTS



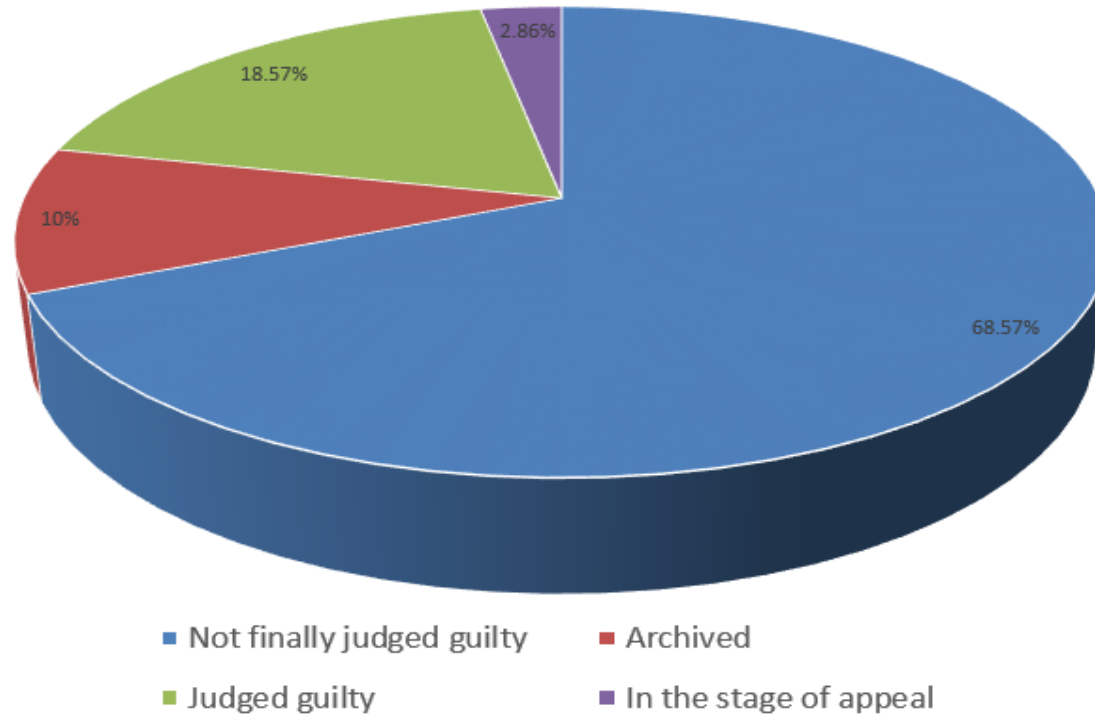
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# Monitoring the court decisions (from GIS map 1)

Judicial status of crimes committed in NATURA 2000 sites



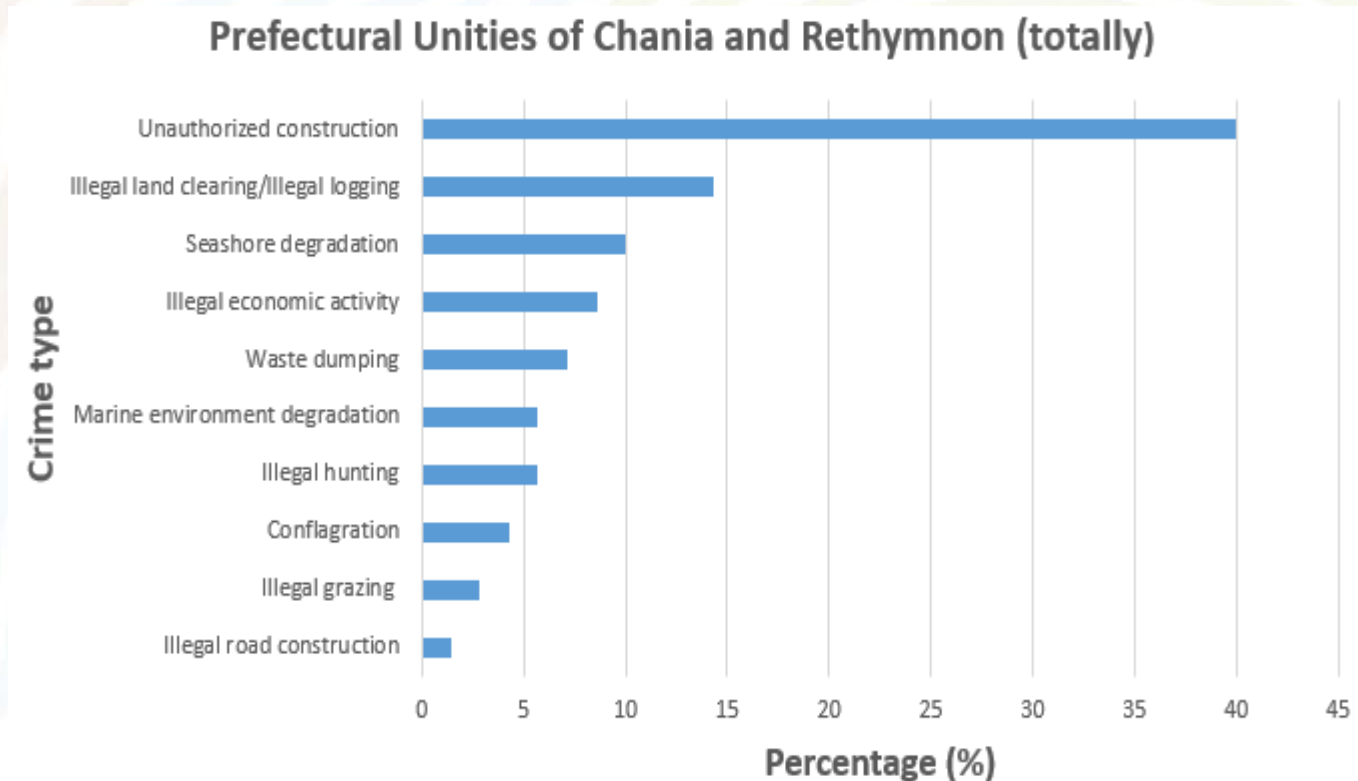
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# Monitoring the crime type (from GIS map 1)



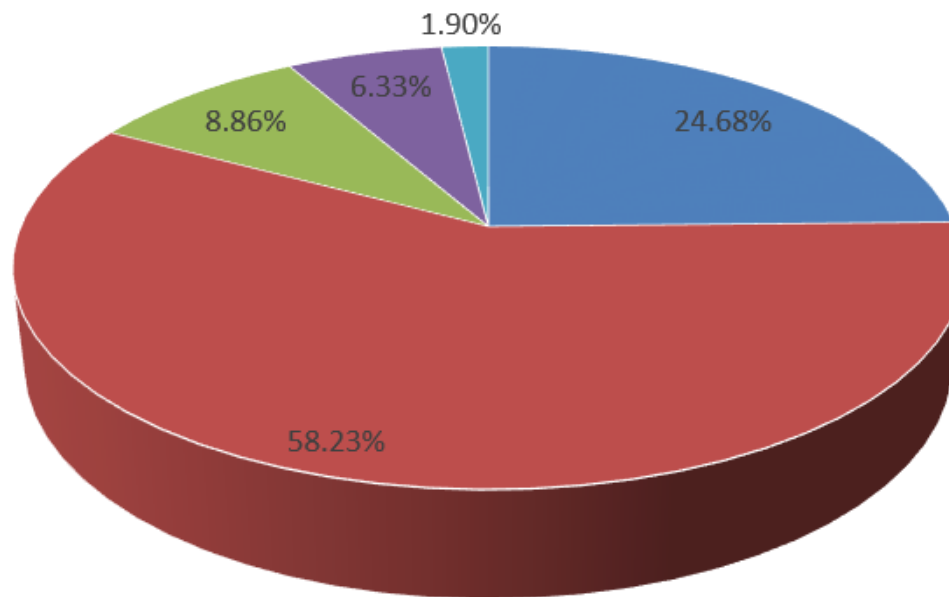
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# Monitoring the fines imposed (from GIS map 1)

Height of administrative fines in Chania and Rethimno regions



■ up to 1000 € ■ 1001 to 5000 € ■ 5001 to 10.000 € ■ 10001 to 20.000 € ■ more than 20.000 €



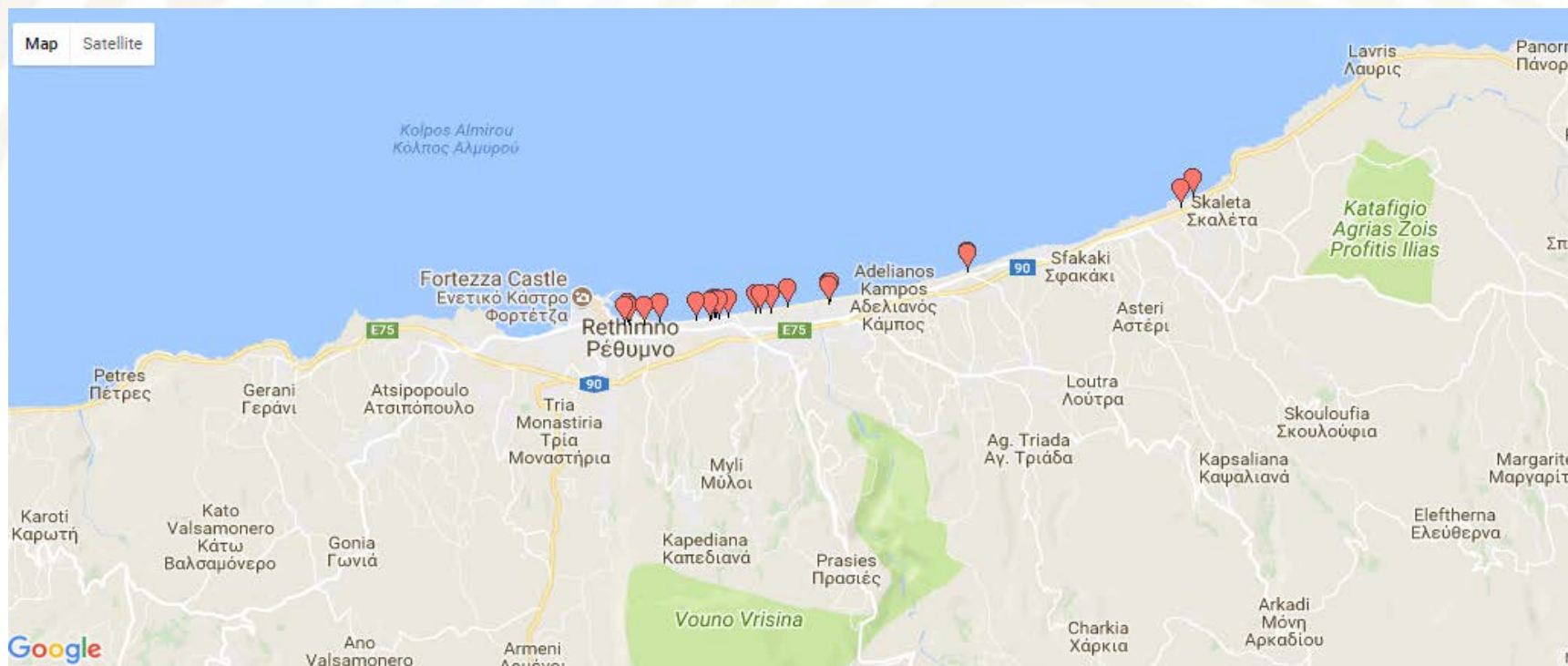
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# Monitoring the spatial distribution of recorded offences (the example of seashore degradation in Rethimnon)



## FILTER THE DATA

Choose a combination of criteria and press 'Apply' to filter the data.



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# A more detailed example of monitoring the efficiency of the relevant public services- the Caretta-caretta case in Chania

- 43 out of 81 (53,09%) imposed administrative fines in 2016 in the Prefectural Unity of Chania, were related with the violation of restrictions regarding the Caretta- caretta protection.
- To all of them was imposed the lowest possible fine of 500 Euro!
- Despite the findings of 2015, no control took place the following summer!

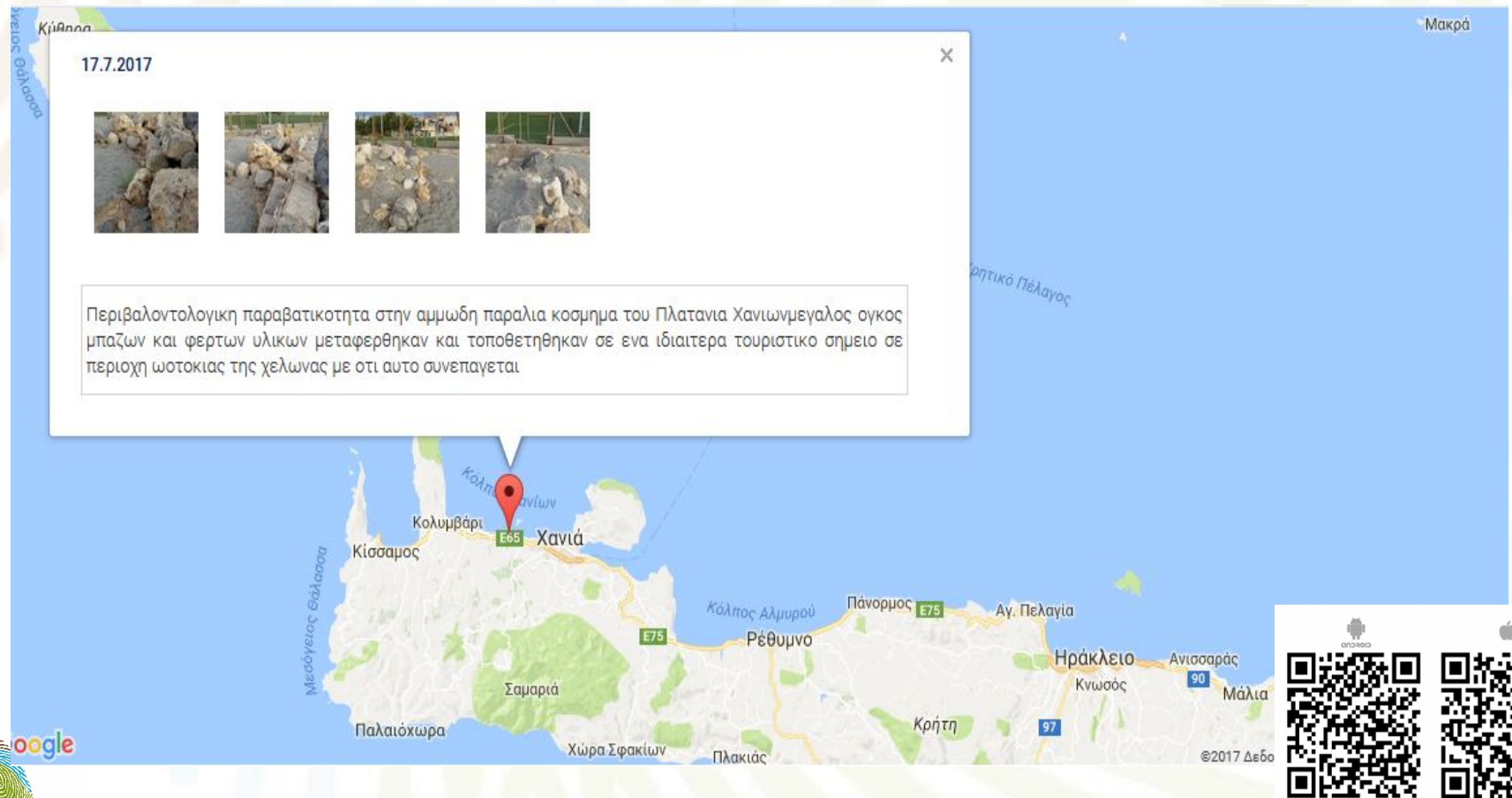


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## 2. LIFE NATURA THEMIS' GIS MAP Room for public complaints (map 2)



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# Important conclusions

## Major difficulties for creating such GIS maps:

The collection of imported data is extremely time consuming (lack of official electronic data, lack of staff and IT services in the relevant public services, reluctance of the authorities to provide the data).

Special license from Data Protection Authority necessary (for court files)!

The quality of imported data is of major significance for further spatial analysis.

→ Extract of the necessary information manually among thousands of irrelevant other court files!

→ Actions for Environmental Crime Code with the Ministry of Justice on- going.



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# Important conclusions

## Major advantages of created GIS maps:

- Through available GIS maps it is easy for everybody to extract information about the recorded offences or current complaints as well how the respective public services tackled or are tackling each one of them! Local journalists are already familiar to the GIS maps and have been using them for writing their articles!
- Through available GIS maps direct monitoring of the efficiency of the relevant public services is enabled, “hotspots” of criminal activity and environmental degradation are targeted. Public authorities easier realize their individual responsibility for preventing and remedying environmental damage.
- Further spatial analysis of imported data will conclude to guides for prefectural strategies against environmental offences.
- It can be used as a road map how Geographic Information Systems/ GIS are able to boost environmental information and affect law and environmental governance.



# Thank you for your attention!

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