

National Observatory of Forests (NOF)

SCERIN-3 Capacity Building Workshop

Brasov, 13-17 July 2015



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Aim of the project

- The establishment and pilot operation of a **National Forest Observatory (NOF)** through the following main actions:
 - the collection of all available **forest management plans** of Greece, and
 - the development of internet-based services that will ensure accessibility to the developed forest information geodatabase.

- **NOF** is the **first attempt** to create a forest management plan database at a national level.

- It is based on a close collaboration of the **Laboratory of Forest Management and Remote Sensing (AUTH)** with the **Greek Forest Service**.



Forest management in Greece

- Forest management plans are the **main source** of information for the Greek forest ecosystems.
- Both **medium and long-term** management planning of forests under **public** as well as **private** ownership is based on these plans.
- Management of forest complexes is based mainly on **10-year** plans.



ΦΥΛΛΟ ΠΕΡΙΓΡΑΦΗΣ ΣΥΣΤΑΔΑΣ

1. ΤΙΤΛΟΣ: 1 ΔΙΑΚΟΝΗ ΚΛΑΣΗΣ: Ομάδα υπό αναγωγή - Πλάσης

2. ΣΥΣΤΑΔΑ: 8

3. ΔΑΣΟΣ: Κισσαμηνής - Αφιδίων

4. ΔΑΣΙΚΗ ΒΕΘΗ: Μπουτσιόβα

5. ΟΡΓΑ: Βίλση δημοτικών κήπων

ΕΠΙΘΑΛΕΙΑ	
Μερίδα Εκμετάλλευσης	Μετ.
Δασοκομική	0,61
Πλάση	18,55
Μηριακές Δασοκομικές	20,38
Γενική Καλλιέργεια	5,31
Σύνολο	
ΣΥΝΟΛΟ	93,04

Α. ΠΕΡΙΓΡΑΦΗ ΤΟΠΟΥ

- Υψόμετρο: 950-1400
- Εκθεση στον ορίζοντα: N
- Κλίση: 20-20%
- Δομική σύσταση: Αφυλλωμένοι σκελετικοί και ανθοειδή
- Εξόρυξη: Χλωροστάσιος, Ερπονίστιος, παραθαλάσσιο βλάστημα Αιγαίου. Μόλις μέτρα κατά βόθρ. Σητ. υγρασίας σπέντες τμήτα και αραιωμένα.

6. Ποσοστά κλάσης σε %:

20,00	30,33	15,00	3,95
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Β. ΠΕΡΙΓΡΑΦΗ ΣΥΣΤΑΔΩΝ

- Δασοκομική ομάδα: Ομάδα αυτοφυής - δασική και Μαύρη πεύκη
- Δασοκομική ομάδα: Δασική - Σπυραγιάς
- Υψηλ. βόθρ.: Αποκατάσταση από έσοδα όλων των κλάσεων δασοφύτων
- Κλίμα: 5.60-110
- Συνέχισμα: 0,7-1,0
- Ευκαλιβρίτις: 1,1
- Ανεμόπνοια: Μέτρια
- Ευκαλιβρίτις κλάση σε κ.μ. όριον ούνο: Δ.Ε.: 59,6

Δασοκομική ομάδα	Α' κλάση Πα				Β' Σύνολο					
	Καύση κλάση	Μέση κλάση	Αυξητική κλάση	Αυξητική κλάση	Καύση κλάση	Μέση κλάση	Αυξητική κλάση	Αυξητική κλάση		
Ομάδα	21,03	105,29	150,96	74,73	382,20	1016,38	5088,67	7295,90	3611,70	17812,84
Πλάση	4,31	85,83	159,40		249,54	81,67	1626,48	3020,63	0,00	4728,78

ΜΕΛΕΤΗ

ΠΡΟΣΤΑΣΙΑΣ ΚΑΙ ΔΙΑΧΕΙΡΙΣΗΣ

ΔΗΜΟΣΙΟΥ ΔΑΣΟΥΣ

ΔΕΡΦΙΟΥ - ΔΑΔΙΑΣ - ΔΙΣΥΜΗΣ

ΠΕΡΙΦΕΡΕΙΑΣ ΔΑΣΑΡΧΕΙΩΝ ΑΛΕΞΑΝΔΡΟΥΠΟΛΕΩΣ & ΣΟΥΦΛΙΟΥ

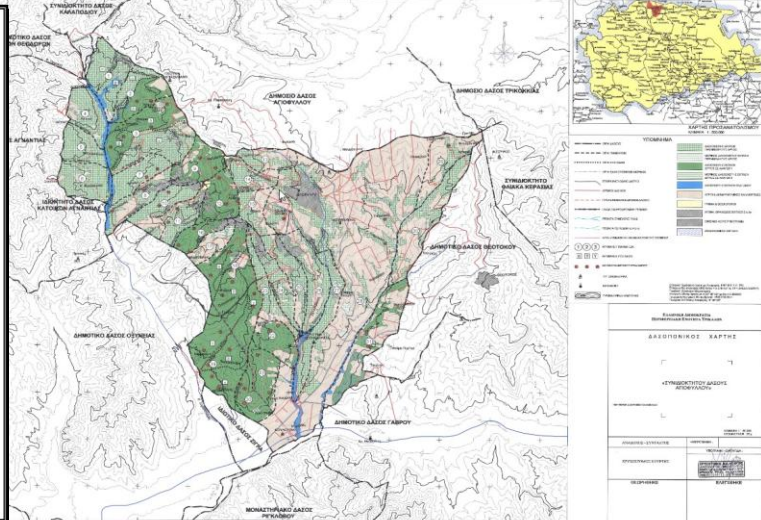
ΠΕΡΙΟΔΟΥ 2006 - 2015

ΤΕΥΧΟΣ Α'

ΕΚΘΕΣΗ ΜΕΛΕΤΗΣ - ΠΙΝΑΚΕΣ - ΔΙΑΓΡΑΜΜΑΤΑ

ΜΑΡΤΙΟΣ 2006

ΣΥΝΤΑΚΤΗΣ:
ΥΔΡΟΓΗΚ Ε.Ε. Παύλος 3 Θεσσαλονίκη



Project actions (phases)

1

Creation of an **inventory** (database) of all available forest management plans at a National level

2

Harmonization of the collected geographic datasets

3

Development of services: a **dynamic php-based browsing service** and a **Web-GIS application**

4

Pilot operation, support and maintenance of the system on behalf of the Greek Forest Service

Innovativeness

- ❑ Formation of an **Experts Advisory Group** consisting of foresters working in the Forest Service and are specialised in GIS and Remote Sensing technologies.
- ❑ **Active** participation and contribution to the development of the final products (services).



Expected benefits

- ❑ **Update, classification and harmonization** of forest information at a national level.
- ❑ **Improvement** of the way the Forest Service functions.
- ❑ **Enhanced** cooperation among local forest service departments.
- ❑ **Promotion** of the information included in the forest management plans, by making it visible through the developed online NOF services.
- ❑ **Ensure** equal-access to the forest management plans by the different stakeholders.
- ❑ **Extraction** of forest information and **statistics** at national level to support **national and international obligations** of the country (e.g. Kyoto Protocol, LULUCF, EUROSTAT).
- ❑ The **compatibility of the developed geodatabase** with existing international standards (e.g. INSPIRE directive, OGC standards).

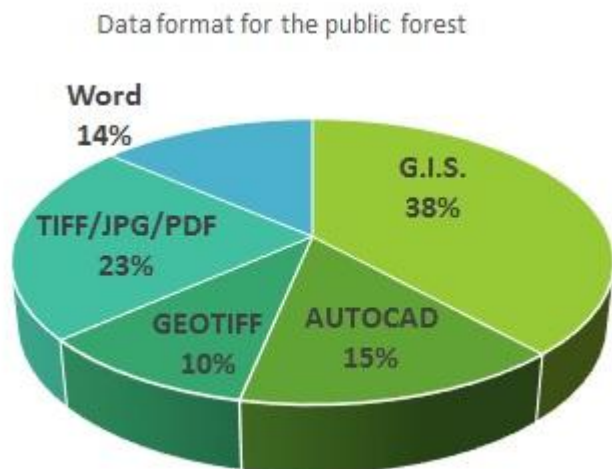
1st phase- Data Acquisition

In the beginning of the project

- 48 forest management plans were available to the Forest Service in digital format.

Today

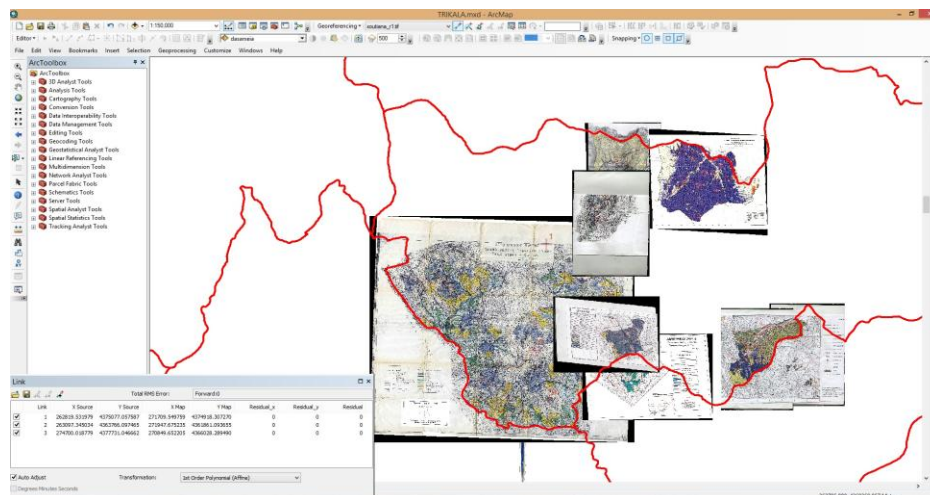
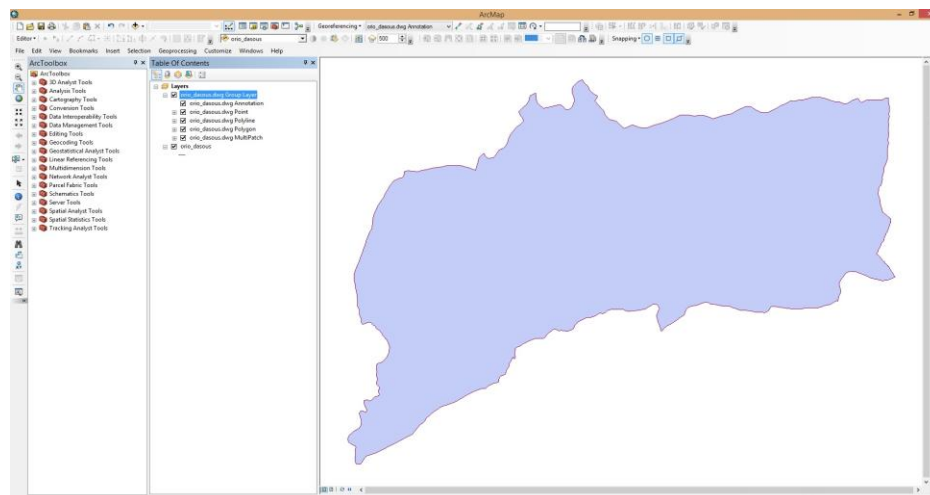
- Information is available for 935 forest management plans, while
- 634 forest management can be accessed online.



2nd phase – Harmonization of geographic data

Basic Steps

- I. **Conversion** of digital files to a common format (e.g., AutoCAD or Geotiff to shapefile).
- II. **Harmonization** of the attributes of the various geographic datasets (e.g., creation of common attributes, nomenclatures, field names etc.).



2nd phase – Harmonization of geographic data (2)

□ The new database contains information from 935 management plans nationwide with the following attributes plan as suggested by the Experts Advisory Group:

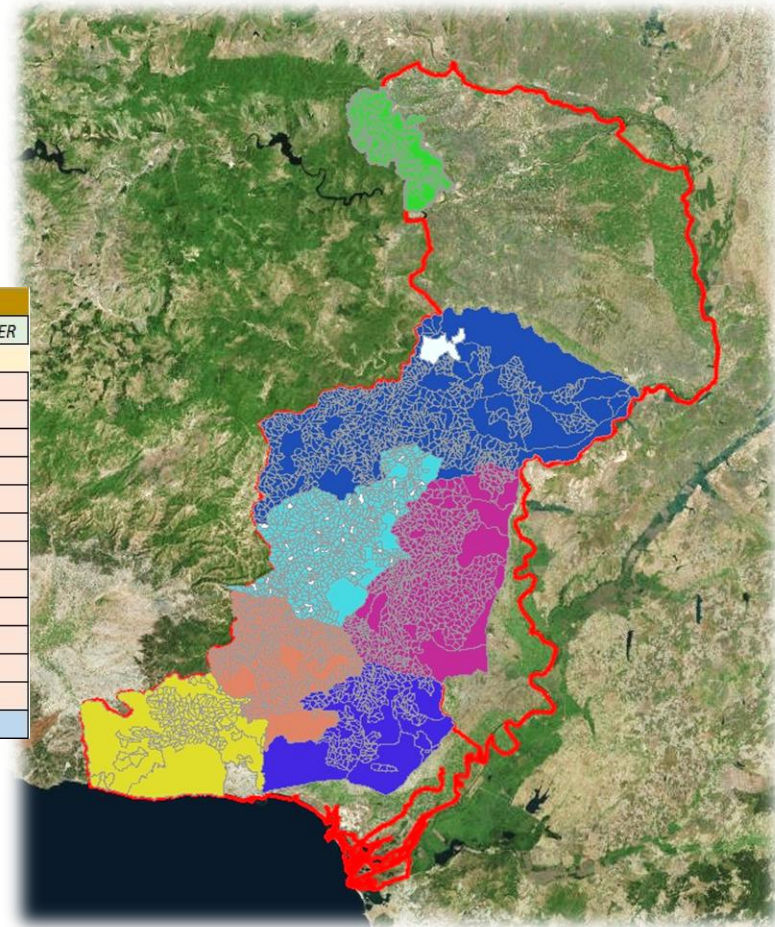
1. Administrative Region, Forest Department and Forest Service
2. Ownership
3. Validity period
4. Start and expiration date
5. Official Order ID
6. Stocking (m²)
7. Annual increment (m²)
8. Timber product (m²)

The screenshot shows an Excel spreadsheet with a complex data table. The columns are labeled with letters A through Z, AA, AB, AC, AD. The rows contain numerical data, likely representing different management plans. The data includes various codes, dates, and numerical values, consistent with the attributes listed in the adjacent list.

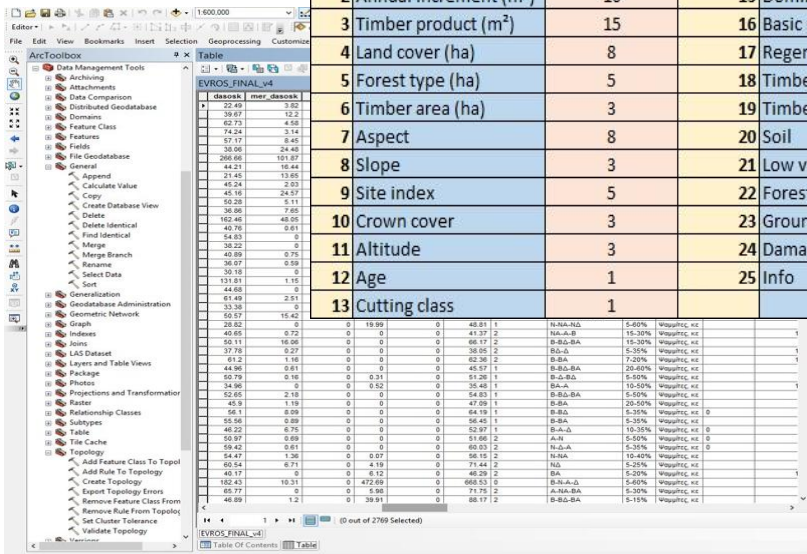
2nd phase – Harmonization of geographic data (3)

Pilot area in N. Greece (5 state forest complexes)

- ❑ Spatial information at forest stand scale.
- ❑ 85 fields with 2769 attribute records were created.



FOREST DATA IN THE PILOT AREA				
DATA	FIELD NUMBER	DATA	FIELD NUMBER	
1 Stocking (m ²)	6	14 Area (ha)	1	
2 Annual increment (m ²)	10	15 Dominant forest species	1	
3 Timber product (m ²)	15	16 Basic rock	1	
4 Land cover (ha)	8	17 Regeneration	1	
5 Forest type (ha)	5	18 Timber year	1	
6 Timber area (ha)	3	19 Timber type	1	
7 Aspect	8	20 Soil	1	
8 Slope	3	21 Low vegetation	1	
9 Site index	5	22 Forest floor	1	
10 Crown cover	3	23 Ground vegetation	1	
11 Altitude	3	24 Damages	1	
12 Age	1	25 Info	1	
13 Cutting class	1			

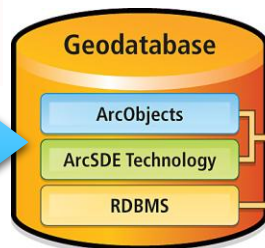


3rd phase – Development of the two NOF services

Technologies

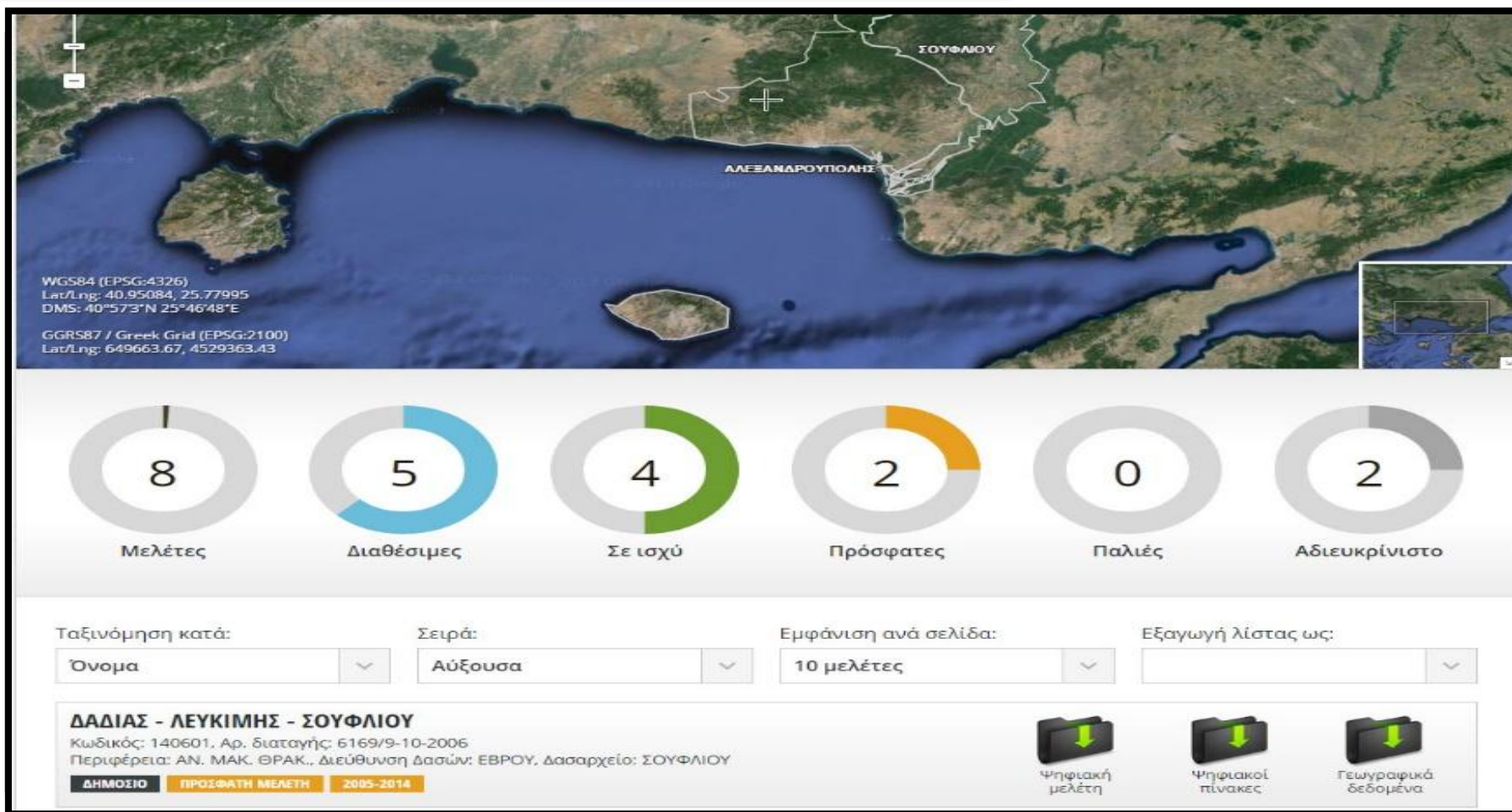


SERVER



WEB

3rd phase – Development of the dynamic website



<http://epad.web.auth.gr/>

3rd phase – Development of the WebGIS application

The screenshot displays a WebGIS application interface. At the top left, the logo for ΕΠαΔ (Εθνικό Παιδαγωγικό Διευρηματικό Σύστημα) is visible. The main map area shows a satellite view of a forest with a green overlay representing a specific area. A popup window titled "Πιλοτική Περιοχή (1 of 3)" provides the following data:

- Ευλασιόθεμα: 1827
- Λήμμα: 138
- Ετήσια προσαύξηση: 97.98999786
- Δασοπονικό είδος: Δρυς
- Συστάδες: 645
- Μελέτη: Νότιο - δάσος Αλεξανδρούπολης
- Zoom to

On the right side, there is a legend titled "ΘΕΜΑΤΙΚΟΙ ΧΑΡΤΕΣ" with the following items:

- ΕΠαΔ
- Μη δασικές εκτάσεις βάσει ILOTS
- Όρια Μελετών
- Δασοπονικός
- Συστάδες
- Τμήματα
- Τύποι βλάστησης και χρήσεων γης
- Ευλώδης άγκος/εκτάριο
- Συγκόμιση
- Εθνικά πάρκα
- Δασαρχεία
- Δικυβύθσιες δασών
- Διοικητικές περιφέρειες
- Πιλοτική Περιοχή

Below the map, there is a table titled "Μελέτες δασαρχείου" with the following data:

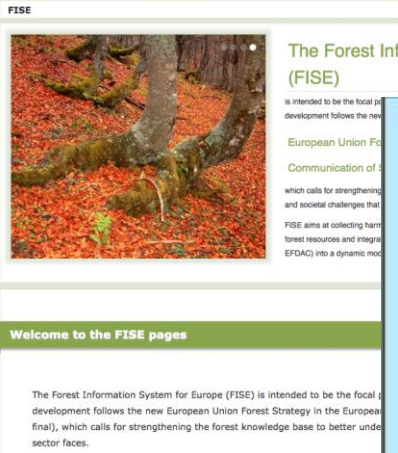
#	Όνομα	Έναρξη	Λήξη	Ιδιοκτησιακό καθεστώς	Ευλασιόθεμα (μ ³)	Ετήσια Προσαύξηση	Λήμμα
1	ΝΟΤΙΟ	2008	2017	ΔΗΜΟΣΙΟ	1562765	68941	129539
2	ΔΕΡΕΙΟΥ - ΔΑΔΙΑΣ - ΑΙΣΥΜΗΣ	2006	2015	ΔΗΜΟΣΙΟ	1977095	71873	718726

Problems

- ❑ **Difficulties** in the collaboration with the local Forest Service Departments in relation to the **acquisition** of the forest management plans.
- ❑ Digital data: a big part of the collected data was in ***tiff and jpeg format*** (no vector or raster data).
- ❑ **Poor quality of the acquired geographic data**, which requires quality control and additional processing (e.g. poor georeferencing).
- ❑ There is a substantial number of management plans still in paper (non-digital).

The Future

To link NOF to the Forest Information System for Europe (FISE) developed by the JRC (discussions have already started)



Forest carbon stock and annual carbon sequestration maps

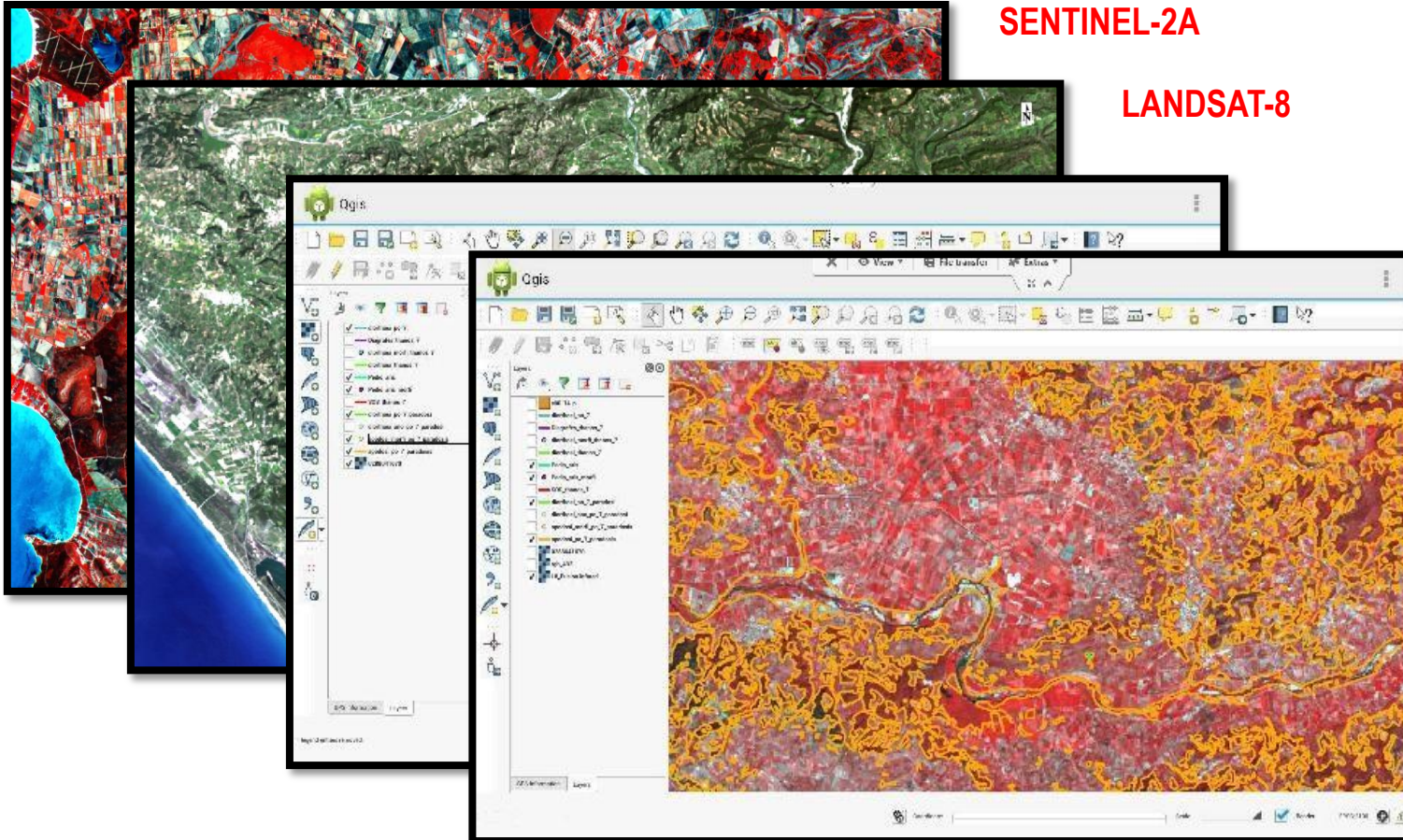


Forest Europe – Monitoring & reporting



The Future (2)

- ❑ Integration of additional forest related spatial information (e.g. forest cadastral survey, forest road network)
- ❑ Forest monitoring with the use of **EO satellite data** (new ESA missions, Landsat-8, etc.)





Thank you!

