

# Utilization of geomatics techniques to characterize vegetation succession in areas with natural and anthropogenic disturbances

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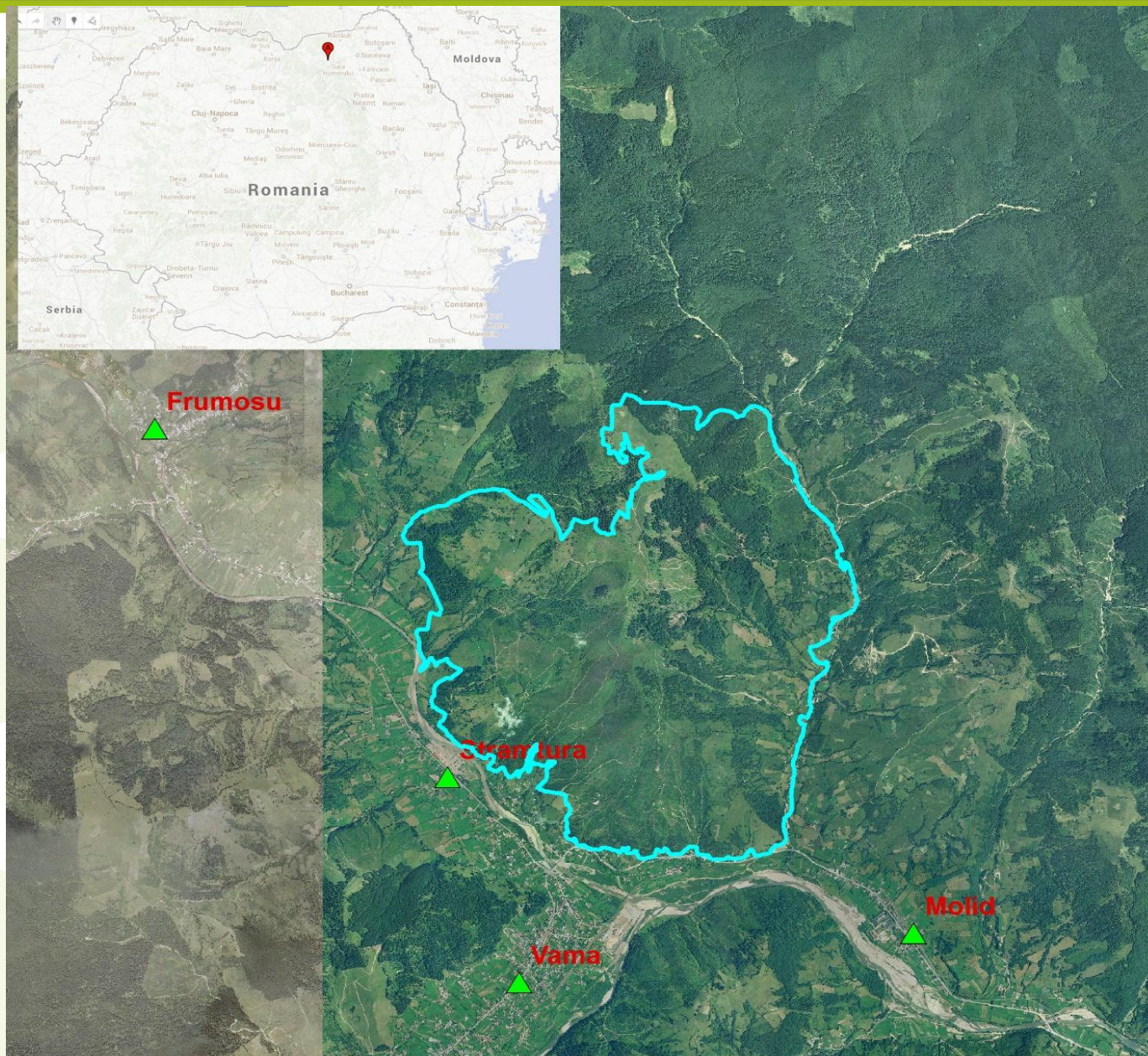
# 1. Research objectives

## 1.1 The aim of the research

- The identification of current restoration of forest ecosystems disturbed by natural and anthropic factors and
- the analysis of natural regeneration stage and of the phases of succession of natural vegetation by means of geomatic technologies

## 1.2 Objectives

- O1: Mapping elementary homogenous surfaces of forestlands by means of satellite images
- O2: Drawing up a map of the spatial distribution of the succesionale phases observed in the field



**Explored  
area**



## 2. Equipments



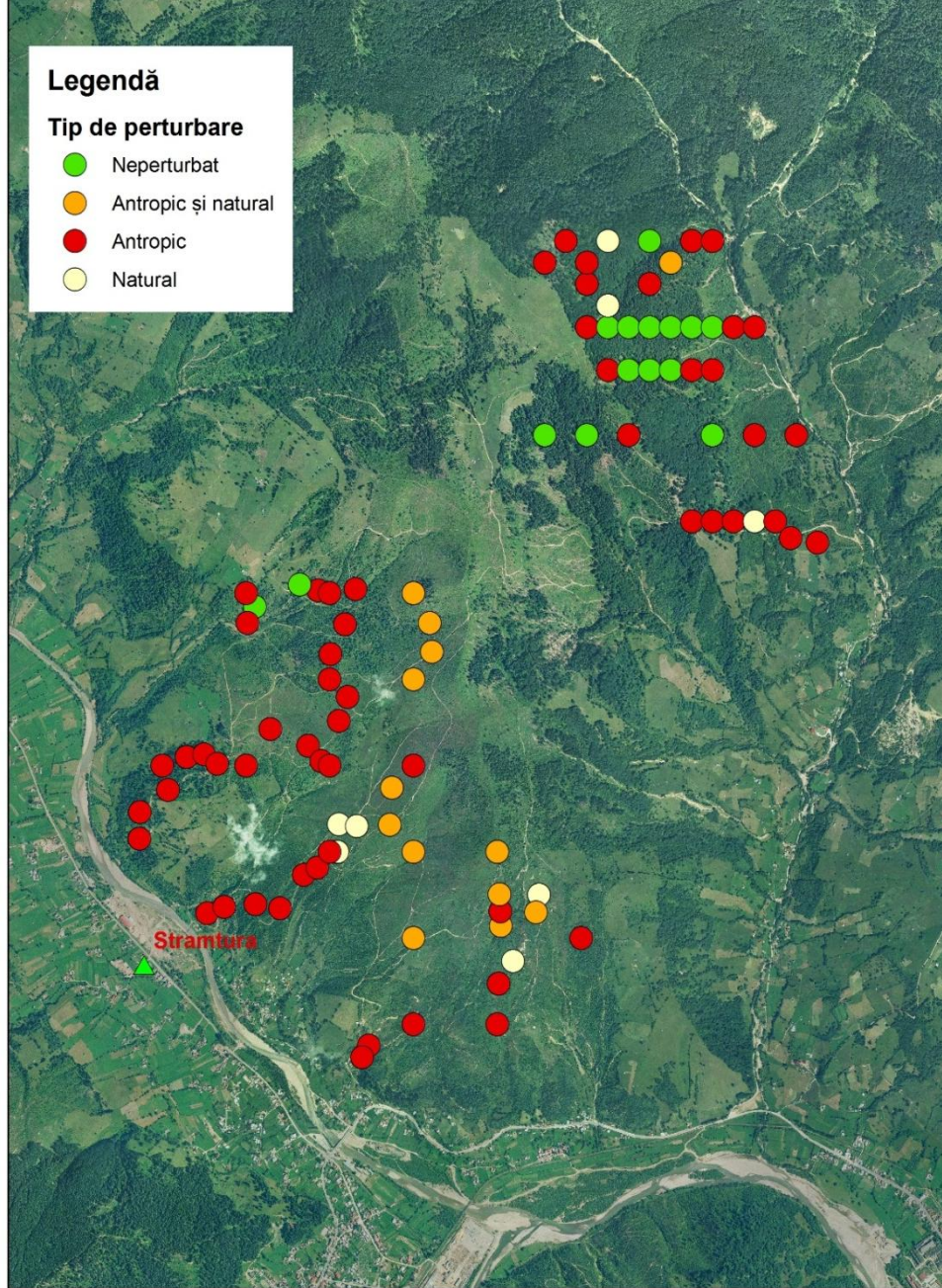
## 3. Methodology

- ❑ Field inventories in areas disturbed during the last 20 years
- ❑ Mapping over satellite images the elementary homogenous surfaces
- ❑ Interpretation of the spatial distribution of the successional phases observed in the field

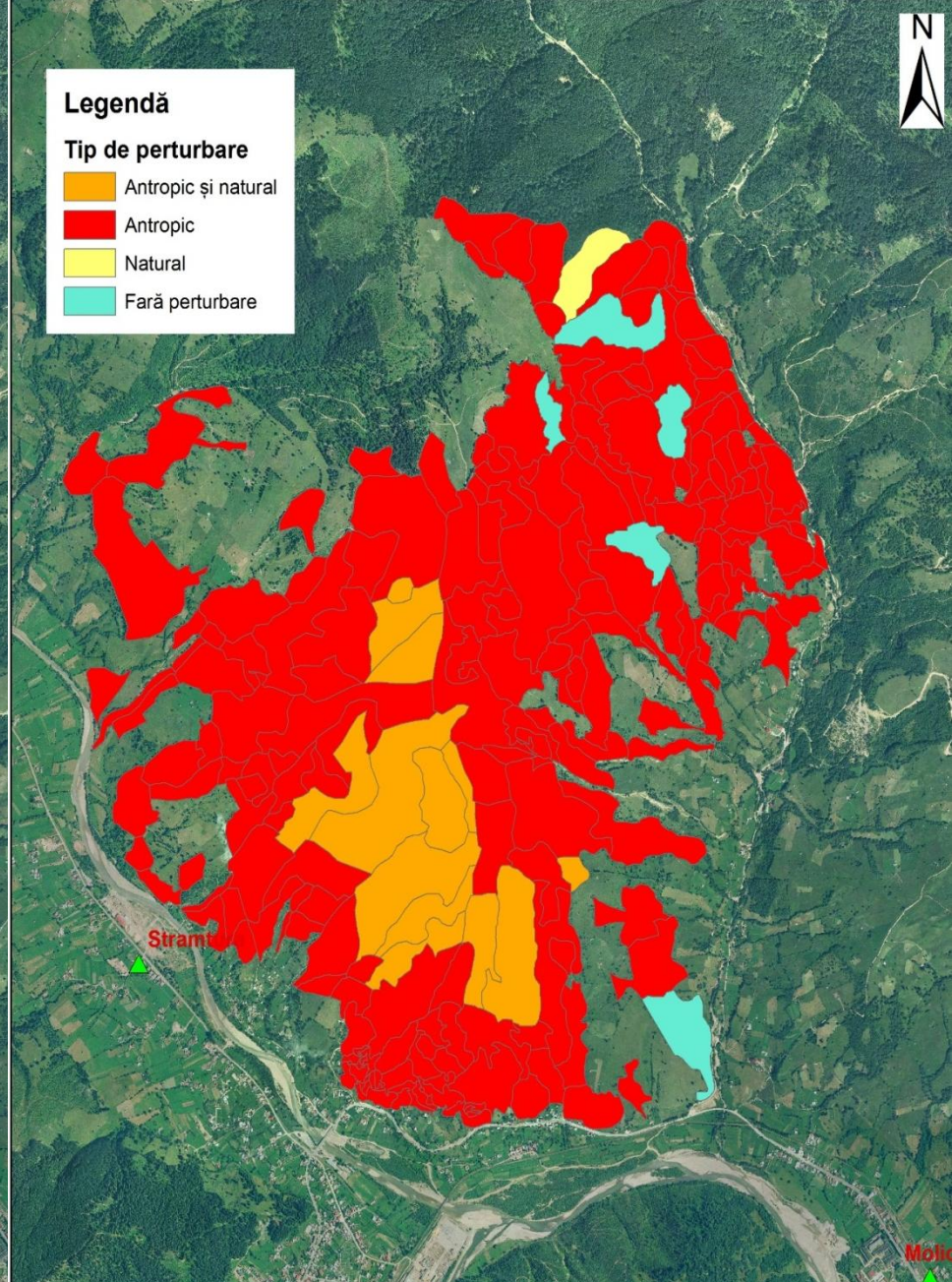


## 4. Results

- The spatial distribution of types of forest disturbances (natural vs. anthropic)
- The map of stands structure by species
- The map of spatial distribution of canopy coverage
- The map of development phases of regeneration
- Spatial distribution map of stands by age classes
- The map of the primary specie in regeneration



The disturbances map in inventoried plots



The disturbances map





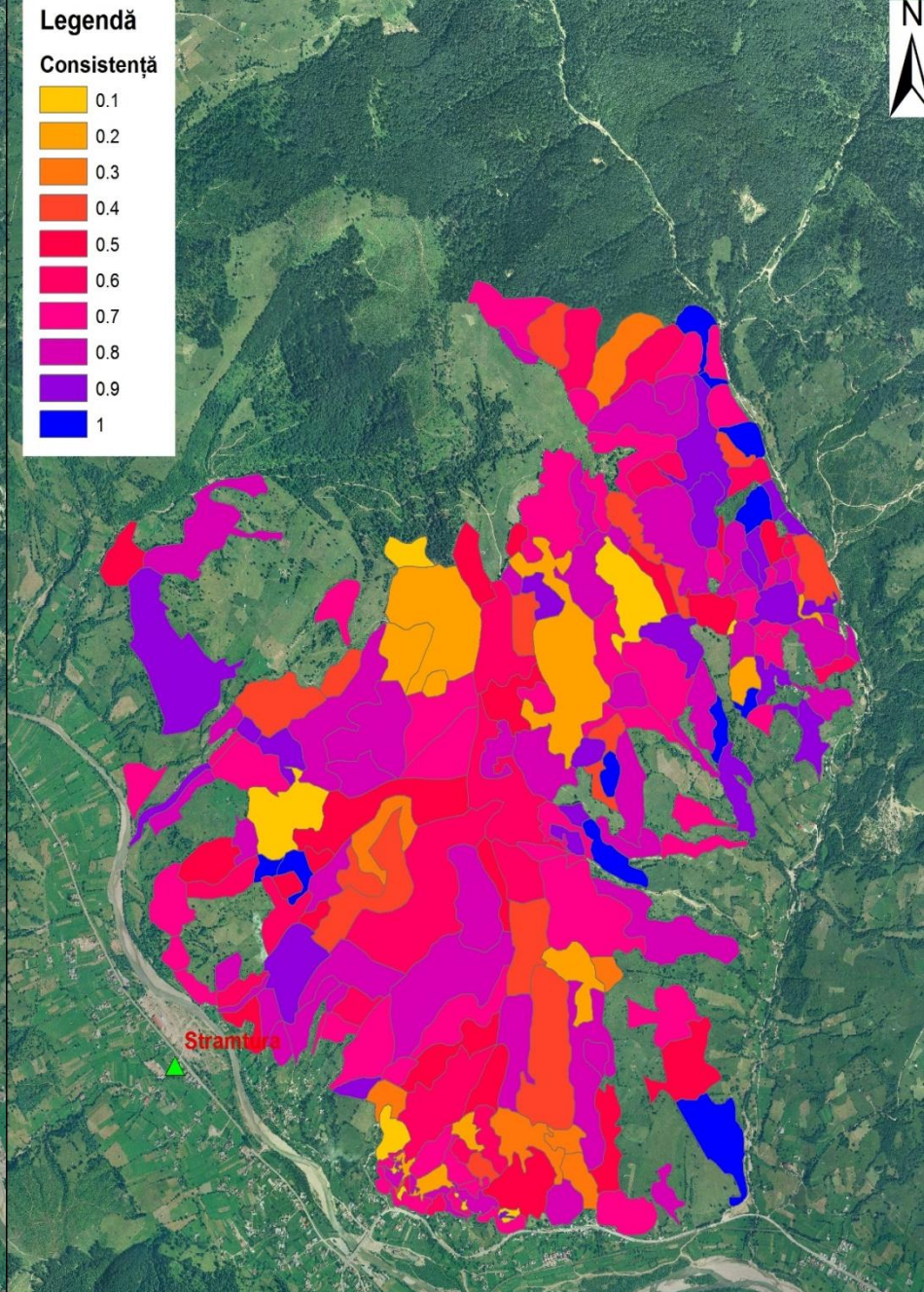
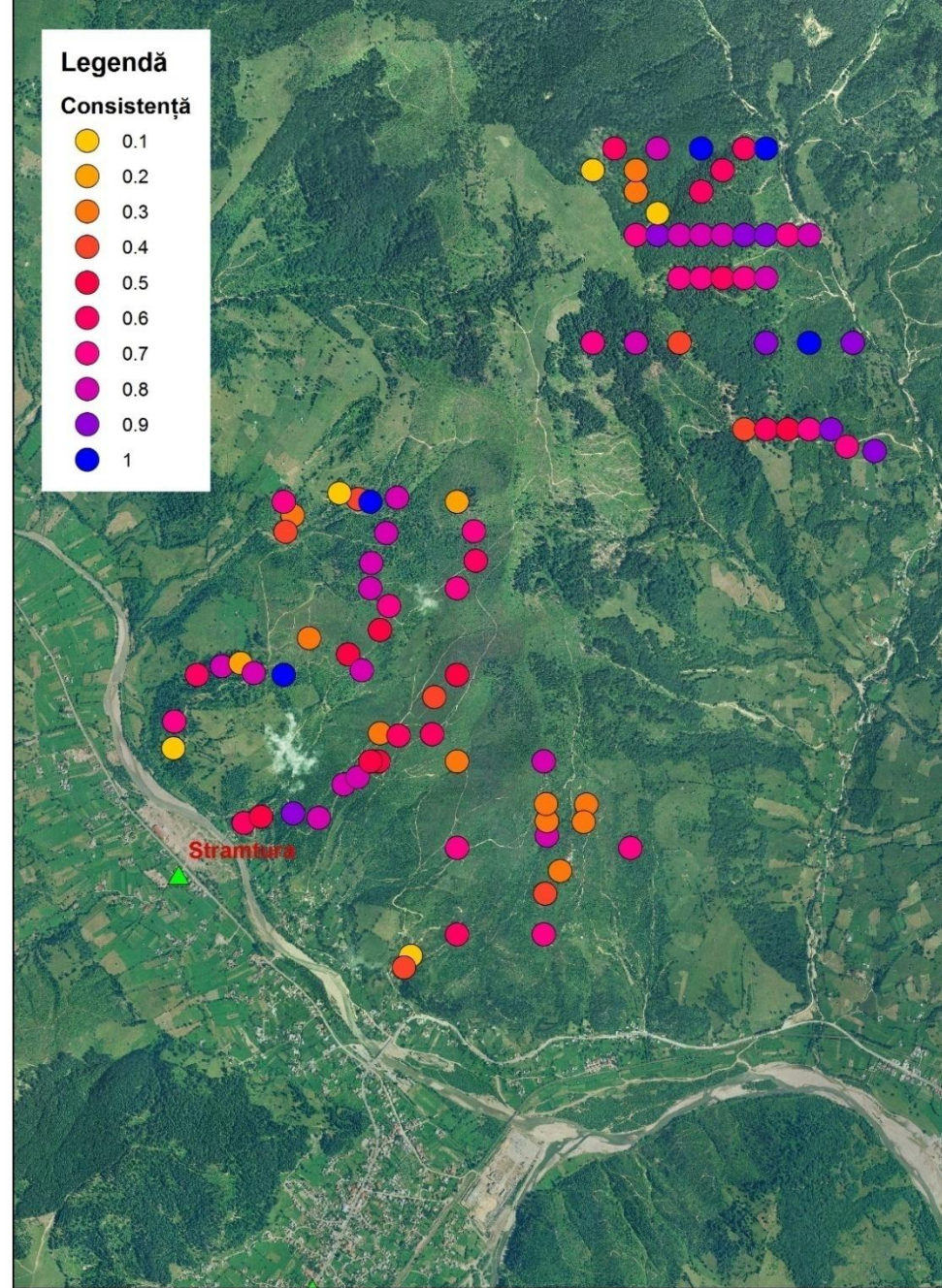
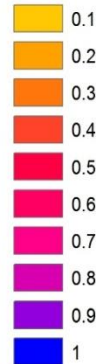
### Legendă

#### Consistență



### Legendă

#### Consistență



The canopy coverage map in inventoried plots

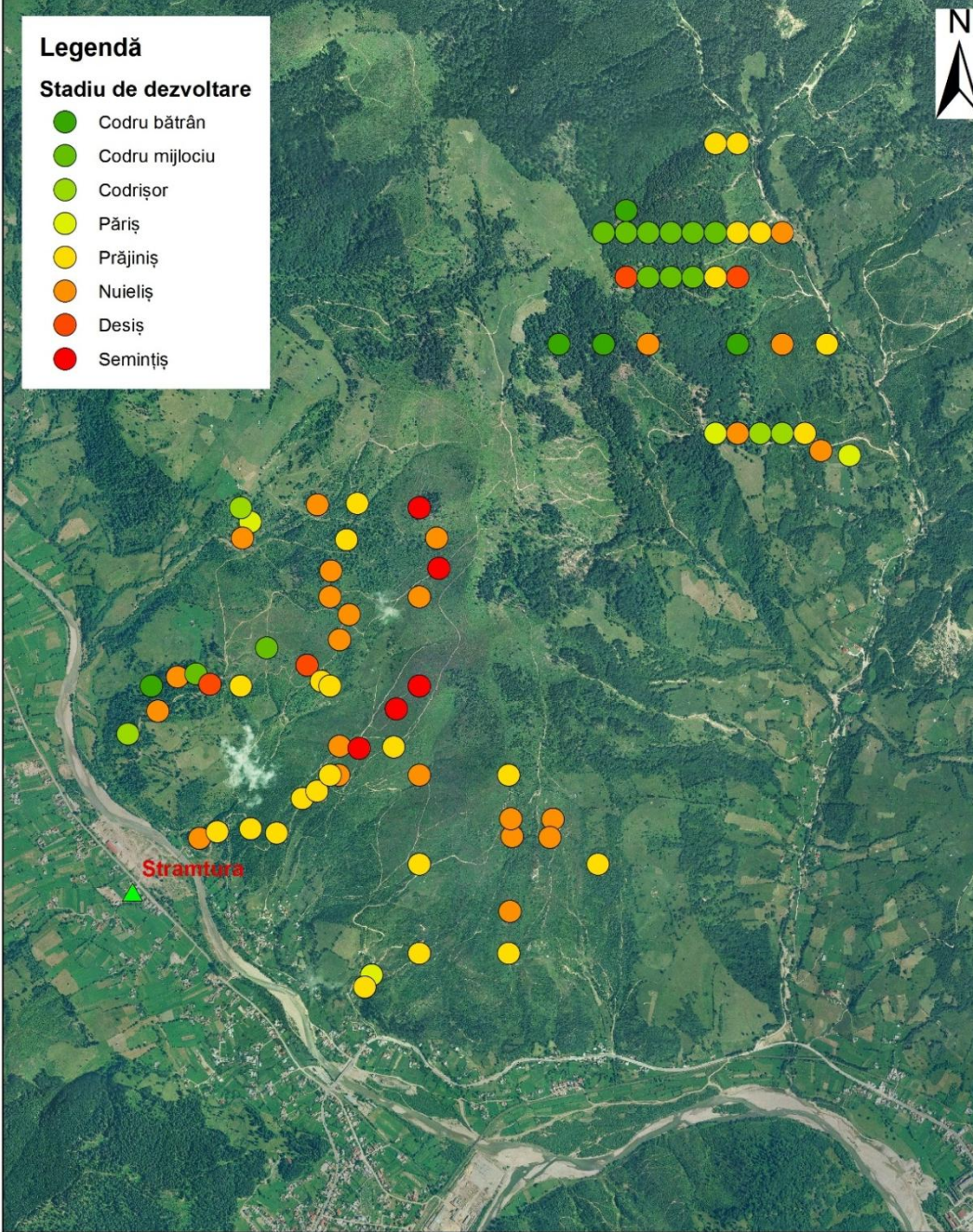


The canopy coverage map in inventoried stands

### Legendă

#### Stadiu de dezvoltare

- Codru bătrân
- Codru mijlociu
- Codrișor
- Păriș
- Prăjiniș
- Nuieliș
- Desiș
- Semintiș

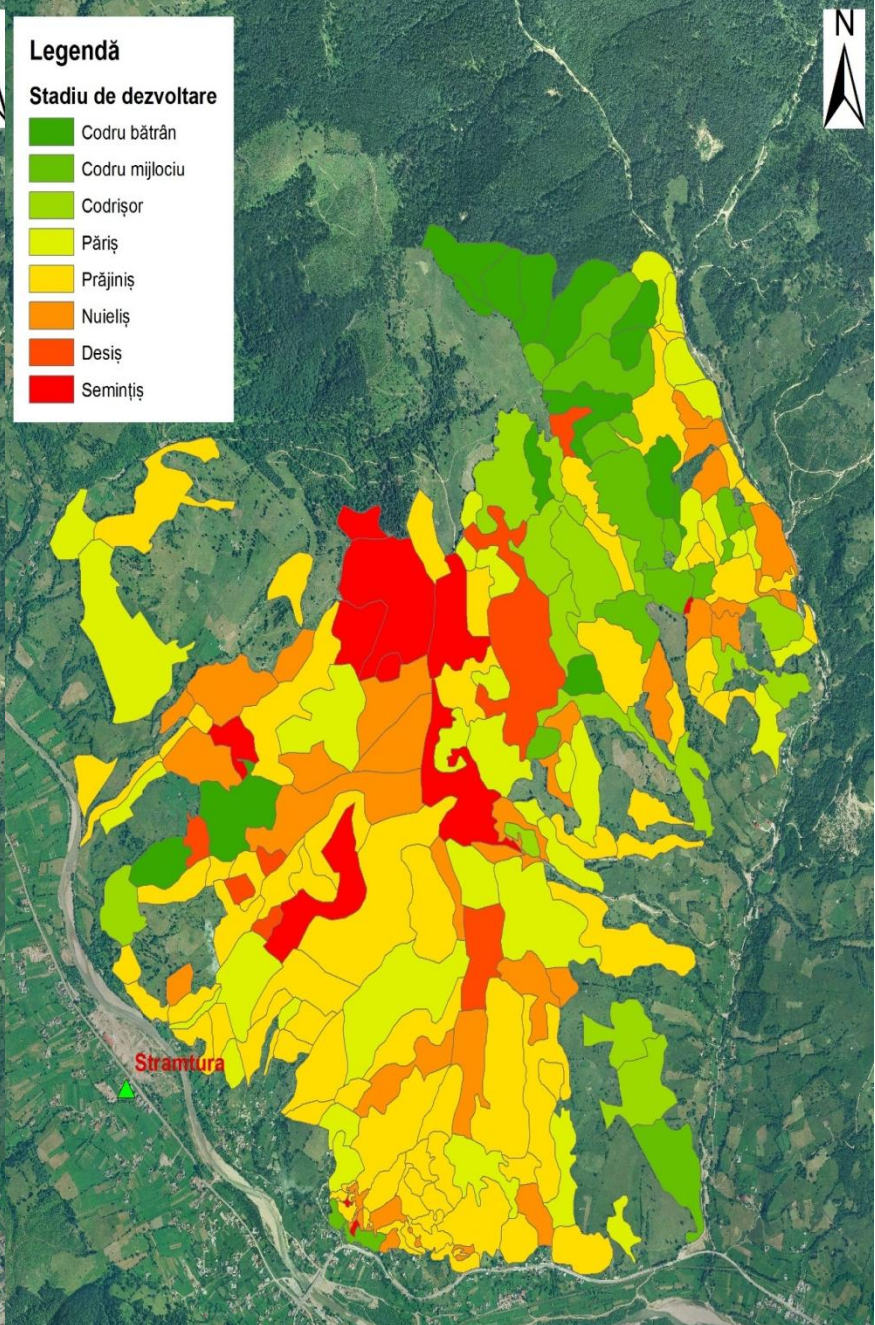


The map of development point  
in inventoried plots

### Legendă

#### Stadiu de dezvoltare

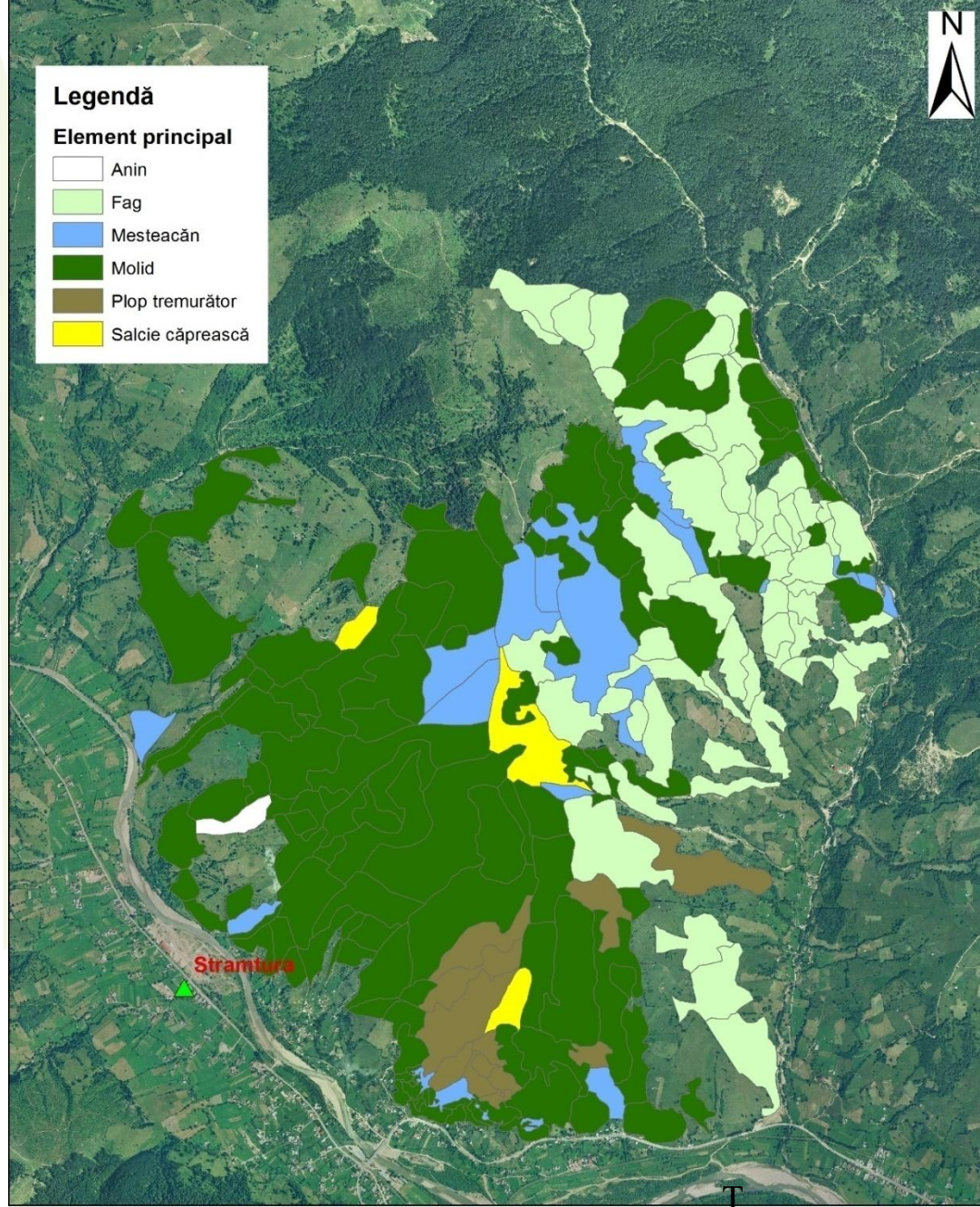
- Codru bătrân
- Codru mijlociu
- Codrișor
- Păriș
- Prăjiniș
- Nuieliș
- Desiș
- Semintiș



The map of development point  
in inventoried stands

0 320 640 1280 1920 m

0 320 640 1280 1920 m



The primary element map in inventoried stands



## 5. Conclusions

- Even if the cause of disturbance has been a natural disaster or the anthropogenic one, the forest ecosystem triggered itself the protection system.
- On an ecological level good results are visible after 20 years, and even after 10 years from the moment of the disturbance.
- The spruce gets a status of pioneer species becoming dominant element in most regenerations
- The compilation of these maps gives an overall picture of the structure of vegetation and its development and provide the data needed for identifying solutions for the management of the disturbed areas