



COORDINATED ACTION FOR INVASIVE SPECIES: STRATEGIES ACROSS FRENCH MEDITERRANEAN LANDSCAPES

A COHESIVE APPROACH TO IAS MANAGEMENT ACROSS THE SOUTHERN REGIONS OF FRANCE

Madeleine FREUDENREICH & Louise TURPIN

Conservatoire botanique national méditerranéen, 34 avenue Gambetta, 84300 Hyères, France

The French Mediterranean area hosts a diverse and unique flora due to its wide variety of environmental settings, shaped by a complex geology and climatic history and its long history of human impact on ecosystems. In the last decades, the region has witnessed the emergence of factors such as urbanization, land use change, tourism, and global trade that have facilitated the introduction and spread of invasive species. Today, biological invasion emerges as a significant challenge to conservation efforts within this biodiversity hotspot. Recognizing the urgent need to address this threat and establish a cohesive approach for invasive alien species (IAS) management across the southeastern regions of France, the Conservatoire Botanique National Méditerranéen (National Mediterranean Botanical Conservatory, CBNMed) and the Conservatoire Botanique National Alpin (National Alpine Botanical Conservatory, CBNA) were requested to develop regional strategies adapted to the environmental, social, economic and political realities across their territories of intervention. That covers the Provence-Alpes-Côte-d'Azur (PACA) region, and the Occitanie region. To help all actors implicated in the management of IAS, the CBNMed has developed a method to classify species according to risk analysis, and has deployed two strategies in both administrative regions.

Elaboration of IAS and pIAS lists

Neophyte species catalog of vascular flora

For all known taxa (validated occurrence data) in the studied area, the origin status, the degree of naturalization and the introduction details (dates, etc.) were thoroughly analyzed. Neophyte species have been classified into different categories according to their establishment in the area. For the elaboration of IAS and pIAS lists, archeophyte species weren't take in account, neither species for which there was no consensus on their indigenous status at the regional level. We also removed all species with a protection status, those which have not been observed since 2000, and those whose taxonomy was unclear or not consensual.

Risk assessments

After assembling all the information needed (observation data, scientific or botanical literature, online databases, existing risk analyses, experts advice, etc.), all taxa which had never shown invasive behavior to date were removed.

For all species remaining, different literature-based analysis were adapted and performed, as:

- Lavergne score analysis (assessment of a taxon's proven invasive behavior)
- Weber & Gut risk analysis (assessment of a taxon's potential for proliferation in a given area),
- EPPO analysis (assessment of the urgency of preventing the introduction, establishment and dispersal of a taxon in a given area).

Invasiveness coefficients

To link risk assessment to actual field work data, two coefficients were calculated for each study area:

- Cover rate (CR): the mean plant cover at the population scale is obtained taking into account the most representative abundance-dominance class of coefficients recorded and adjusted to expert opinion.
- Species spatial distribution: the spatial distribution (SD) is deduced by calculating the number of cells (5 x 5 km grid) of presence correlated to the total number of cells.

Combining risk assessments and the two previous coefficients, five categories of Invasive Alien Species (IAS) and potentially IAS (pIAS) were defined. For IAS: "severe", "moderate" and "emergent"; For pIAS: "alert" and "prevention".

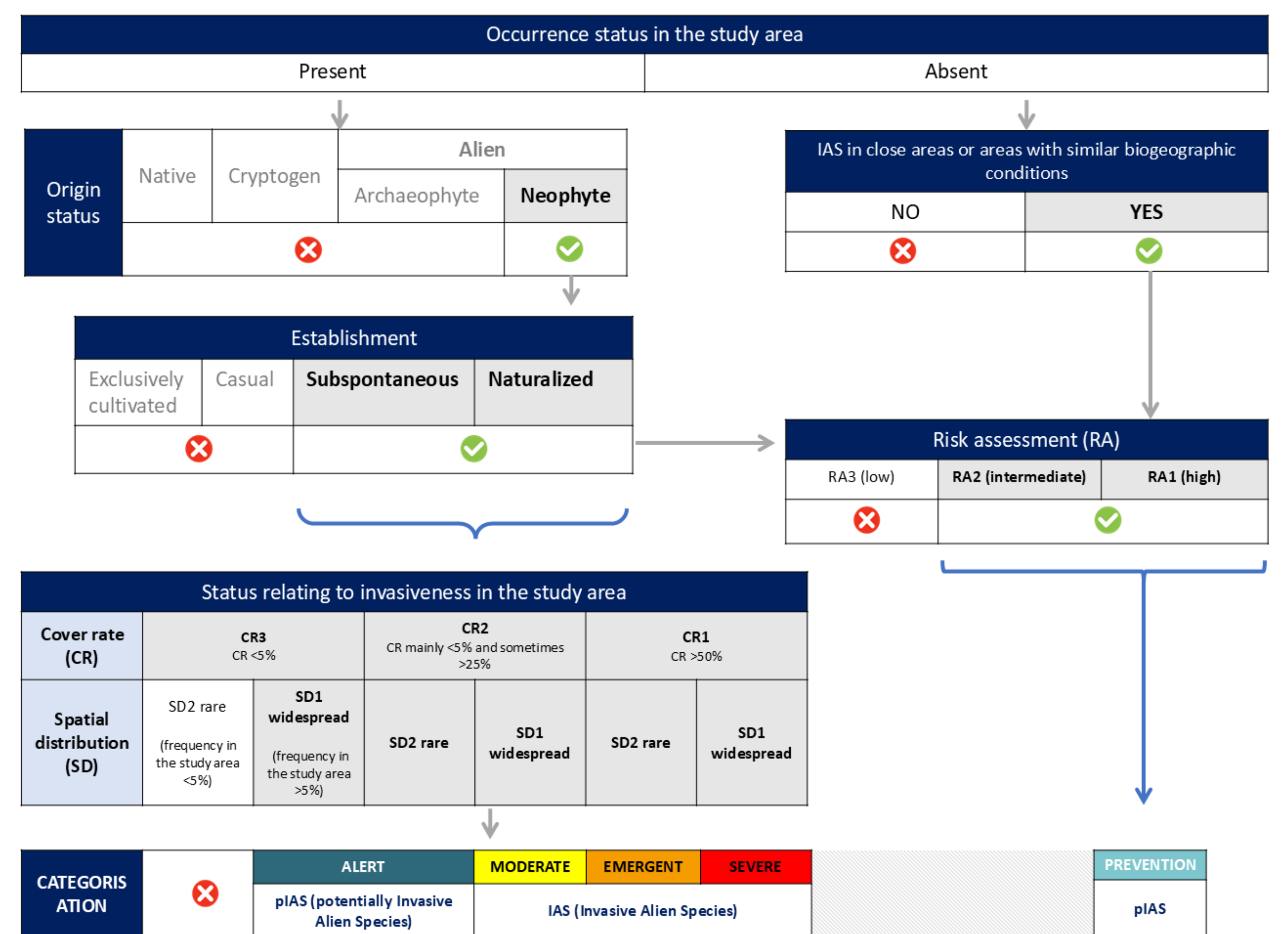


Fig.1 : Criteria for defining and listing IAS and pIAS on the study area scale (Terrin *et al.*, 2022)

Development of regional strategies

Five main directions are identified :

- PREVENTION
- MANAGEMENT
- KNOWLEDGE IMPROVEMENT & INFORMATION SHARING
- COMMUNICATION, AWARENESS & TRAINING
- GOVERNANCE, COLLABORATION & ANIMATION

The implementation of the regional strategies for alien plant species has been underway for several years, and is materialized through two action plans for the Provence-Alpes-Côte-d'Azur and the Occitanie regions (Terrin *et al.*, 2014 ; Turpin *et al.*, 2023).

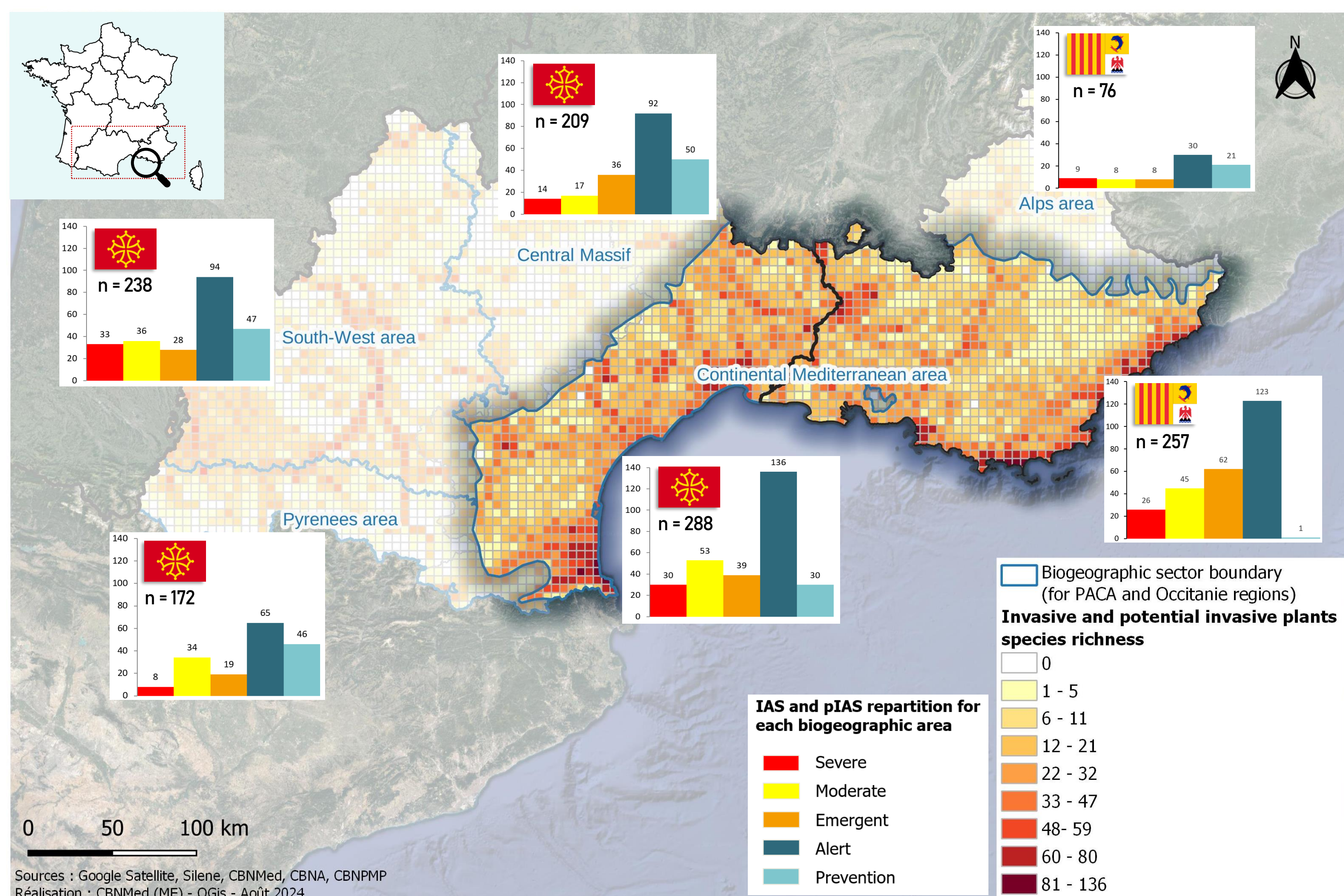


Fig.2 : Pattern of IAS and pIAS richness in the PACA and Occitanie regions; mapped in square grid cells (5 x 5 km) and categorization representation for each biogeographic area

INV MED-Flore: a platform about mediterranean invasive plants

INV MED-Flore (<https://invmed.fr/>) is a comprehensive platform which has multiple purposes, aiming to inform, educate, and engage the community in managing and mitigating the impact of invasive plant species in the mediterranean region.

Information is provided for each species identified as IAS or pIAS, as geographical origin, introduction details, negative and positive impacts, best practice recommendations, occurrence map, status and actions carried out. INV MED-Flore also encourages managers to share their own experiences and actions about IAS in French mediterranean regions.

**TO SEE THE ONLINE
VERSION OF THIS POSTER**

CLICK HERE →



REFERENCES :

Conservatoire botanique national méditerranéen & Conservatoire botanique national alpin. 2024. SIMETHIS - module Flore [online]. <http://simethis.eu> (accessed the 07/08/2024)
Terrin, E., Cottaz, C., Fort, N., Van Es, J., Noble, V., & Diadema, K. (2022). Regional strategy for invasive alien plant species: towards an integrative and biogeographic approach to the territory of Provence-Alpes-Côte d'Azur, France. *Biological Invasions*, 24(11), 3581-3595. <https://doi.org/10.1007/s10530-022-02863-x>
Terrin E., Diadema K. & Fort N. (2014). Stratégie régionale relative aux espèces végétales exotiques envahissantes en Provence-Alpes-Côte d'Azur et son plan d'actions. Conservatoire botanique national alpin & Conservatoire botanique national méditerranéen de Porquerolles. Direction régionale de l'environnement, de l'aménagement et du logement PACA & Région PACA. 396p.
Turpin, L., Dao, J. & Cottaz, C., (2023). Stratégie régionale relative aux plantes exotiques envahissantes d'Occitanie. Plan d'actions 2023-2032. Conservatoire botanique national méditerranéen et Conservatoire botanique national des Pyrénées et de Midi-Pyrénées. 67p. + annexes

<https://invmed.fr/>

CONTACTS : invmed@cbnmed.fr