





100

50

latitude 0

20

100

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latitude 35 40

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-150







European Cooperation for Statistics of Network Data Science

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MODELLING Acacia saligna IN MEDITERRANEAN ISLANDS, **USING HIGH RESOLUTION TOPOGRAPHIC AND CLIMATIC DATA**

EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

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INTRODUCTION

Invasion by non-native tree species is an environmental challenge requiring adequate predictive tools to assess invasion dynamics and inform decision makers and land managers. Thus, the identification of the areas exposed to the highest risk of invasion represents a priority. The frequent scale discrepancy between informative thematic layers and executive action plans, might limit the suitability of modeling for invasion management. This study aims to assess the reliability and advantages of species distribution models (SDMs) with high-resolution thematic layers (HRTLs) for the invasive tree Acacia saligna in Sardinia. The study is conducted in the framework of the international project "ALIEM" (PO Marittimo, Action pour Limiter les risques de diffusion des espèces Introduites *Envahissantes en Méditerranée*) among Meditarreaean regions of France and Italy.

METHODOLOGY



Acacia saligna – pods and seeds (Brundu 2017, Sardinia, IT)

RESULTS **GLOBAL DISTRIBUTION** LOCAL DISTRIBUTION Response curves (SARDINIA) A. saligna niche "world" Ö Suitable 0.6 - 0.6 0.4 Projected suitability for Acacia saligna in Sardinia 0.5 2 10 -10 30 835 0 4 0.2 40 - 0.8 Unsuitable - 0.6 latitude 40.0 13 15 16 18 19 21 22 24 100 100 Mean Temperature of Coldest Quarter(C - 0.4 0.4 longitude 0 200 - 0.2 A. saligna niche "EU" Suitable ion of Warmest Quar 119 279 438 59 0.8 0 0.6 0.4 10 11 0.2 longitude AUC = 0.87 Pearson r = 0.310.0





A combination of models at different scale help to overcome their limitations. Fine-scale spatial-explicit estimation of invasion success combining SDM predictions with high resolution invasion mapping, this might mitigate scale discrepancy between predictions of invasion dynamics and help conservation decision making for invasion management.

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