

Fighting Alien Species Trans-border: A Citizen Science Perspective

The First BioBlitz of the Maltese Islands

¹Simone Cutajar*, ¹Daniel Mangion, ¹Arthur Lamoliere, ²Oscar P. V. Lisi & ¹David Mifsud

¹Institute of Earth Systems, University of Malta, Msida, Malta

²Department of Biological, Geological and Environmental Sciences, University of Catania, Catania, Italy

* Corresponding author: simonecutajar@gmail.com



Introduction

NEOBIOTA 2022 – 12th International Conference on Biological Invasions
Tartu (Estonia) – September 12-16 2022

In late August 2022, the University of Malta, a principal partner within the Interreg Italia-Malta's **FAST** project (**F**ighting **A**lien **S**pecies **T**rans-border), organised the first national **BioBlitz** on the Maltese Islands. The focus of this three-day Citizen Science (CS) event was finding and identifying as many plant alien species as possible at *L-Inħawi tal-Buskett u tal-Girgenti*, a Special Area of Conservation within Malta's the Natura 2000 network. The data was collected using a structured survey methodology carried out by volunteers after receiving a short training session prior the fieldwork.

The aim of this BioBlitz was to investigate the spatial distribution of these species while engaging the general public and raising general awareness about ecological issues related to biological invasions. In addition to the long-term conservation and monitoring of the designated Natura 2000 site this BioBlitz was an an important source of social and demographic data which is invaluable for understanding participants' motivation to continue participating in the CS initiative, as well as to encourage new participants to join other CS initiatives..

Keywords: Bioblitz, Citizen Science, alien species, IAPS, Natura 2000, data collection.

Methodology

Sampling effort

Initially, participants were trained on **what** species they would be looking out for, **where** they would be conducting the survey and **how** they would be collecting data.

Overall, 36 alien plant species were targeted across the 19 sectors comprising the study-area. Each sector was surveyed by **at least** one participant team for a maximum period of one hour.

Data collection

GPS points, photos and species ID were collected by participants on Epicollect 5 and subsequently reviewed by the authors through a two-stage verification process (species ID and GPS position).

Individual records were classified as either 'accurate', 'unsure', or 'inaccurate' in terms of GPS and species identification.

	Species ID	GPS
Accurate	ID confirmed by matching picture and name	GPS accuracy < 20 meters
Unsure	ID does not match picture but ID possible from picture	GPS accuracy > 20 meters
Inaccurate/missing	ID inaccurate, no further ID possible	GPS data not collected

Data classified as accurate were plotted by species in ArcMap (Figure 1), showing spatial distribution by species, overlaying the BioBlitz sectors and the 2022 SIntegraM basemap layer.

Social data was collected through a standardised survey developed by the European Citizen Science Association. This was completed by each citizen scientist following participation in the BioBlitz.



Results & Discussion

BioBlitz Participation

All participants were positive about their experience, with **65%** rating it as excellent. The majority of volunteers indicated their main reason for joining the BioBlitz was because it 'sounded like fun'. This was followed by wanting to 'contribute to the understanding of biodiversity', to 'engage with/understand science' and because it was something they could do 'with family and friends'. The majority were willing to continue contributing to CS efforts (**96%**) and to explore nature and the outdoors on their own (**80%**).

Species ID & Distribution

The most accurately identified species were *Ailanthus altissima*, *Amaranthus retroflexus*, *Arundo donax* and *Agave* spp.. Whereas *Pistacia atlantica* and *Echinochloa crus-gallii* were the most misidentified species.

Of all the records collected, **44%** were found to be accurate, with no need for correction.

Overall, **15 different** species were identified out of **97 records**, as plotted on the Figure 1.

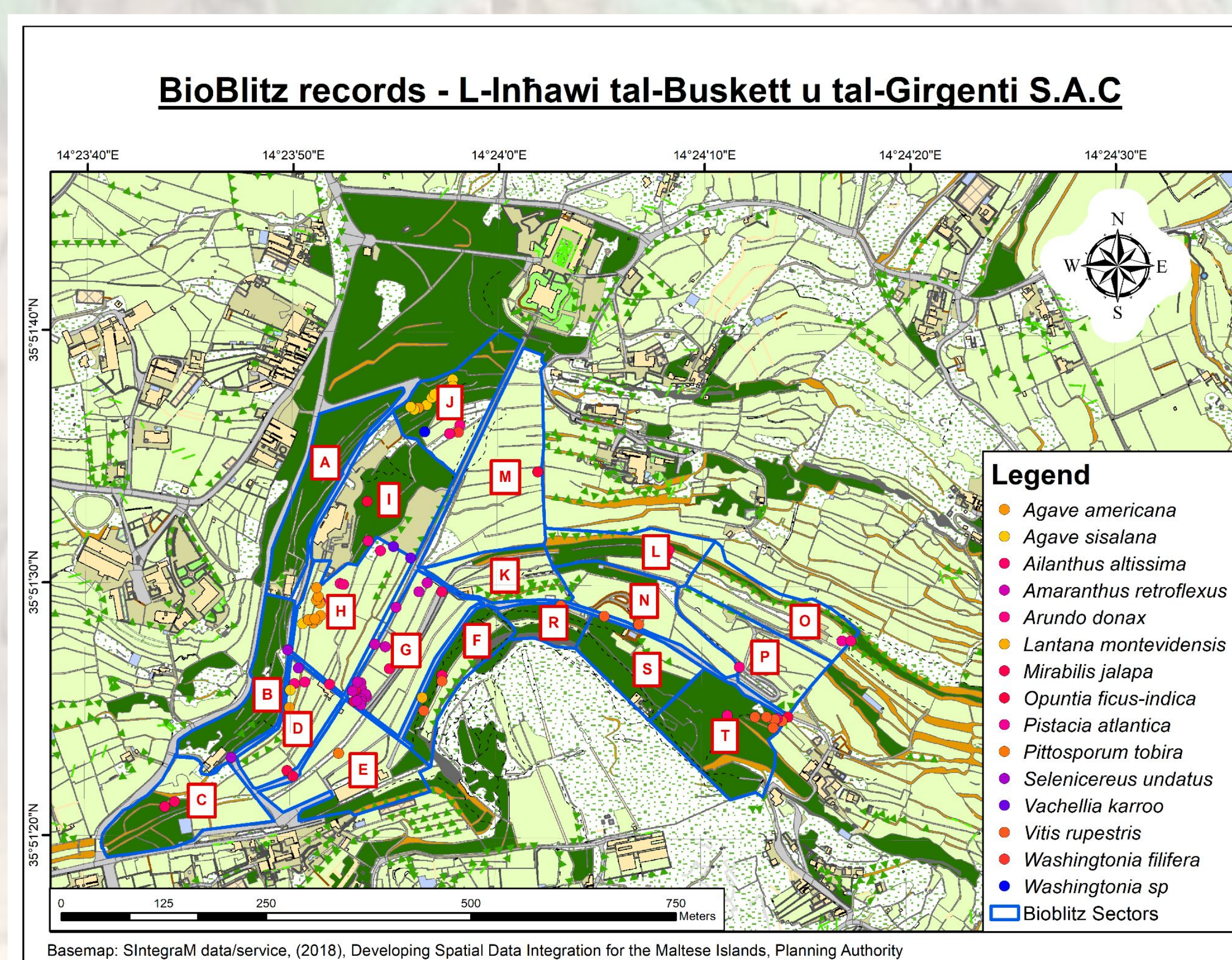


Figure 1. Mapping of the 15 spp. identified in 19 sectors.

Concluding remarks & acknowledgements

The FAST Team would like to thanks all the Citizen Scientists who contributed to the success of this BioBlitz, as well as Ambjent and the Environment and Resource Authority for their support. Special thanks to Danil Golomovzy for his help in data analysis.