Item number	Title/reference *(academic style) name initials (year) title, publisher, volume, pages*	Name of reviewer
12	Giovos, I., Kleitou, P., Poursanidis, D., Batjakas, I., Bernardi, G., Crocetta, F., Doumpas, N., Kalogirou, S., Kampouris, T.E., Keramidas, I. and Langeneck, J., 2019. Citizen-science for monitoring marine invasions and stimulating public engagement: a case project from the eastern Mediterranean. Biological Invasions, 21, pp.3707-3721.	Symplexis

Review of findings / main outcome

This paper details the findings of “Is it Alien to you? Share it!!!”, a citizen science project conducted in Greece and Cyprus, aiming at identifying new invasive species, and measuring their spread in the Eastern Mediterranean.

The project followed three steps in order to gather data and include them in the database:

1. Data Gathering: sea users (citizen scientists) send in their observations, mostly through social media (a dedicated Facebook group with over 5.000 users). Each observation gets a “confidence score” between 1 and 3, depending on how reliable it is.
2. Identification and Validation: observations with the highest confidence score are sent to scientists for identification.
3. Database Updating: the database is updated on a monthly basis by the project manager after a final check.

In total, over two years, 1003 observations were collected resulting in 691 records of marine alien and cryptogenic species (68.8%). Among those, 537 (77.7% of the total records of NIS) were photo-identified and validated by the taxonomic experts, with a confidence score of 3. Fifty-eight (58) different species were recorded. This constitutes a valuable contribution in studying invasive species, as some were observed for the first time in the Mediterranean during this project.
Another advantage of the project was that it allowed this large collection of data with a very limited budget.

One limitation of this project, however, was that a lower number of species was identified than in other databases, probably due to the fact that participants are unfamiliar with taxonomic groups other than fish (meaning it is harder for them to identify alien species), and the fact that this project is still new in comparison to other databases.

Another limitation was the low participation of professional fishers, due to their being in general of older age, and thus less familiar with the use of social media, which was the main platform for reporting sightings.

The paper concludes that citizen science can be an effective complementary tool for monitoring the spread of invasive species, through the provision of timely and accurate information. Additionally, it can serve to raise awareness and promote cooperation between “regular” citizens and scientists.

Quotes / very useful statements

1) When properly designed, citizen science projects can provide scientifically robust and reliable data.

2) The analysis of the iSea dataset and its comparison with the ELNAIS and EASIN databases revealed the substantial contribution of this citizen science effort to complement scientific data on the distribution and dynamics of NIS, but also its limitations.

3) Identifying limitations and setting clear goals when designing and executing citizen science projects is of imperative value for securing data quality and credibility

4) Citizen science is a twofold approach, in which citizens can pursue sound research but at the same time increase their knowledge and awareness on specific topics

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2) Theobald EJ, Ettinger AK, Burgess HK, DeBey LB, Schmidt NR, Froehlich HE, Parrish JK (2015) Global change and local solutions: Tapping the unrealized potential of citizen science for biodiversity research. Biol Conserv 181:236–244. https://doi.org/10.1016/j.biocon.2014.10.021