**LifeWatch ERIC e-Science for NIS research workshop | 20-21 May 2021**

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# Plant species monitoring using Deep Learning: Three case studies

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# Outline

- The detection of the invasive species *Cortaderia Selloana* in social media

- The monitoring of Ziziphus Lotus in Google-Earth images

- The monitoring of *Juniperus* in Google-Earth images

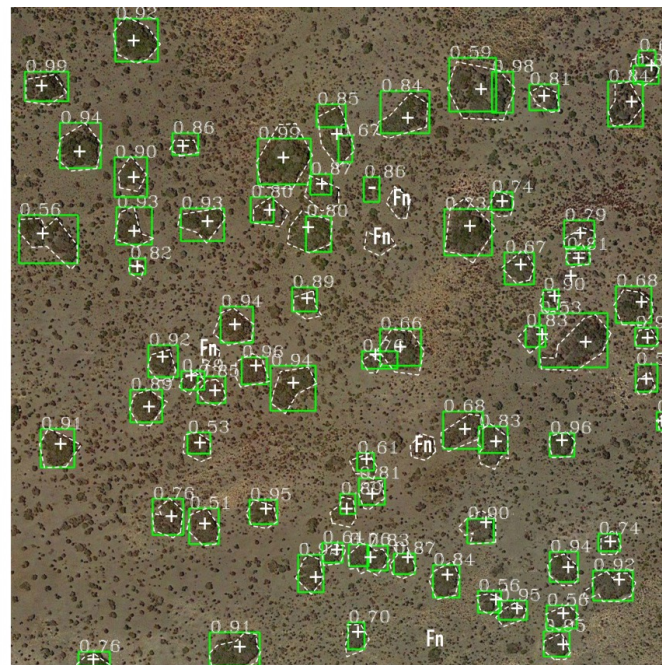# The detection of the invasive species *Cortaderia Selloana* in social media

- **Objective**: To know the distribution of the invasive *Cortaderia Selloana* using georeferenced pictures from social media

- **Methodology**: scraping pictures from social media, Fliker. Then analyzing them with a DL detection model.



Combining satellite remote sensing and social media to track the distribution of the invasive pampas grass. Philosophical Transactions of the Royal Society B. Cardoso, A.S., Renna, F., Tabik, S., Gonçalves J.F., Vicente, J.R., Honrado, J.P., Vaz, A.S. Under review

# The monitoring of Ziziphus Lotus in Google-Earth images

**Objective**: build a tool to monitor the conservation state of the Mediterranean area

**Methodology**: A deep learning detection model & GE images.



Deep-Learning Convolutional Neural Networks for scattered shrub detection with Google Earth Imagery E Guirado, S Tabik, D Alcaraz-Segura, J Cabello, F Herrera. Remote Sensing 9(12): 1220 (2017)

# The monitoring of *Juniperus* in Google-Earth images

**Objective**: build a tool to monitor climate change in high mountains.

**Methodology**: A semantic segmentation DL model in time series satellite images

(work in progress)



**1983**                    **2016**

# Thank you!

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