Supplementary S1. Full eCognition rule sets for automated seed and seedling identification from Buters *et al.* 2019.

Identification of seeds:
1: Multiresolution segmentation (scale parameter 10, shape: 0.4, compact: 0.7) creating 'New Level'
2: Assign class – *unclassified* with Total diff to scene ≥100 at New Level: *Seed*
3: Merge – *Seed* with Brightness ≥0 at New Level: merge region
4: Assign class – *Seed* with Length/Width >1.5 at New Level: *unclassified*
5: Assign class – *Seed* with Area <0.8 cm^2 at New Level: *unclassified*
6: Assign class – *Seed* with Roundness ≥0.8 at New Level: *unclassified*

Identification of target seedlings (***L. angustifolia***):
1: Multiresolution segmentation (scale parameter: 20, shape: 0.3, compact: 0.7) creating 'New level'
2: Assign class – *unclassified* with green ratio* >0.36 at New Level: *target*
3: Spectral difference segmentation – *target* at New level: spectral difference 30
4: Assign class – *target* with Mean diff. to neighbours DEM (0) ≥0.007 at New Level: *definitely target*
5: Assign class – *target* with HSI Transformation Saturation (R = Layer 3, G = Layer 2, B = Layer 1) <0.1 at New level: *unclassified*
6: Assign class – *target* with HSI Transformation Hue (R = Layer 1, G = Layer 2, B = Layer 3) ≥0.2 and HSI Transformation Saturation (R = Layer 1, G = Layer 2, B = Layer 3) ≥0.2 at New level: *maybe target*
7: Assign class – *maybe target*, *target* with Perimeter/Width >18 at New level: *unclassified*
8: Assign class – *maybe target* with Compactness <2.5 at New level: *definitely target*
9: Assign class – *maybe target*, *target* with TGI <21 at New level: *unclassified*
10: Assign class – *maybe target*, *target* with TGI ≥26 at New level: *definitely target*
11: Pixel based object resizing – *maybe target* at New level: shrink using *maybe target* where rel. area of object pixels in 5 x 5 ≥0.2
12: Assign class – *definitely target*, *maybe target*, *target* with Length/Width ≥5.5 at New level: *unclassified*
13: Assign class – *definitely target*, *maybe target*, *target* with Area ≤16 cm^2 at New level: *unclassified*
14: Assign class – *target* with Brightness ≥0 at New level: *unclassified*
15: Assign class – *maybe target* with Brightness ≥0 at New level: *unclassified*

*Green ratio= Mean Green/(Mean Red + Mean Green + Mean Blue)

Identification of non-target grass cover (**applied following *Identification of target seedlings***):
1: Assign class – *unclassified* with TGI >6.5 and green ratio >0.35 at New level: *non-target grass*
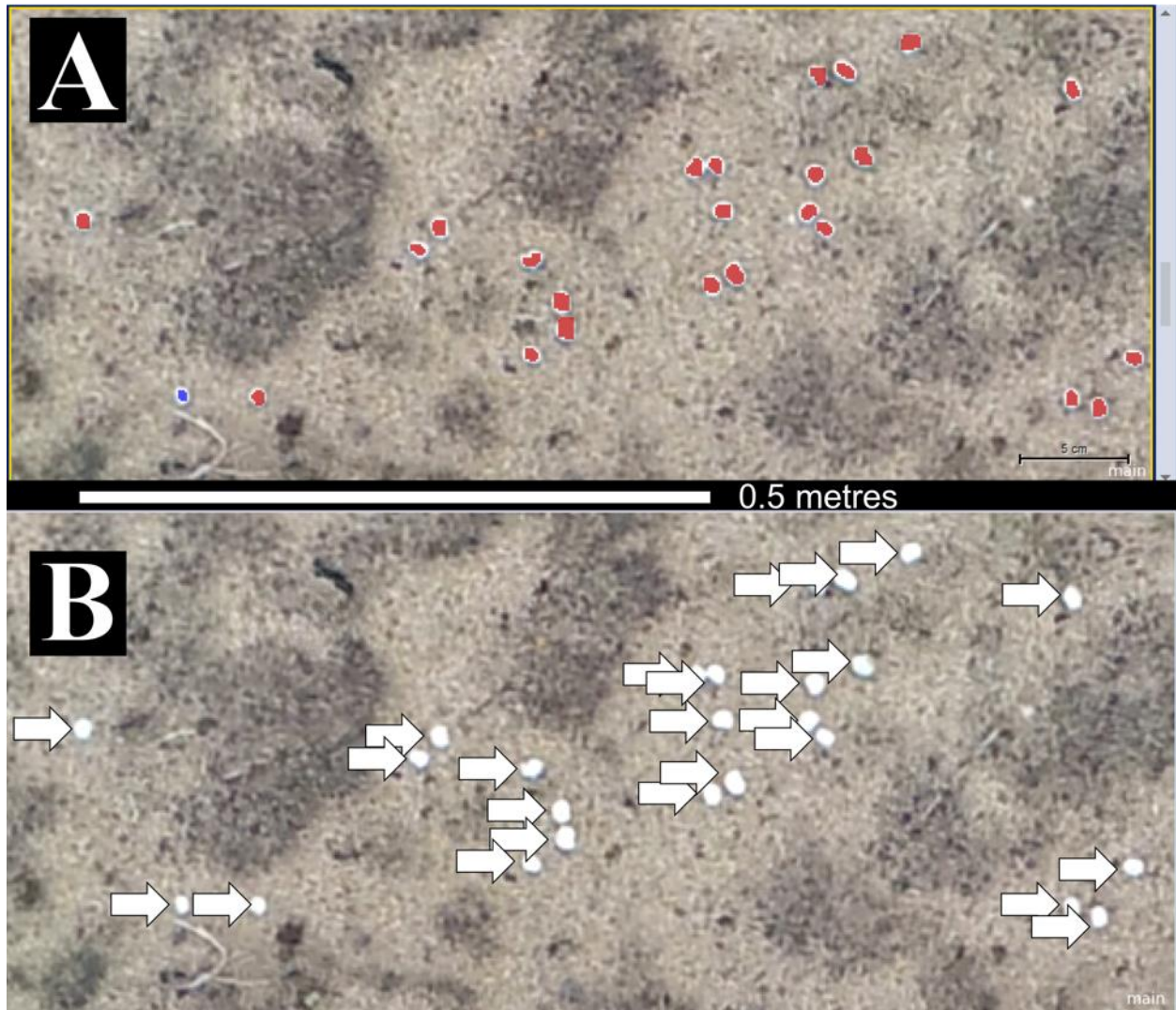
Figure S1. Example output image of a processed target area identifying seeds from eCognition rulesets, highlighting classes 'seeds' (red), as well as 'missed target' (blue) manually identified post-processing (A), with corresponding unprocessed image target area (B) in which target seeds have been manually identified (annotated arrows). Image taken from an altitude of 5 m with a DJI Phantom 4 Pro UAV.
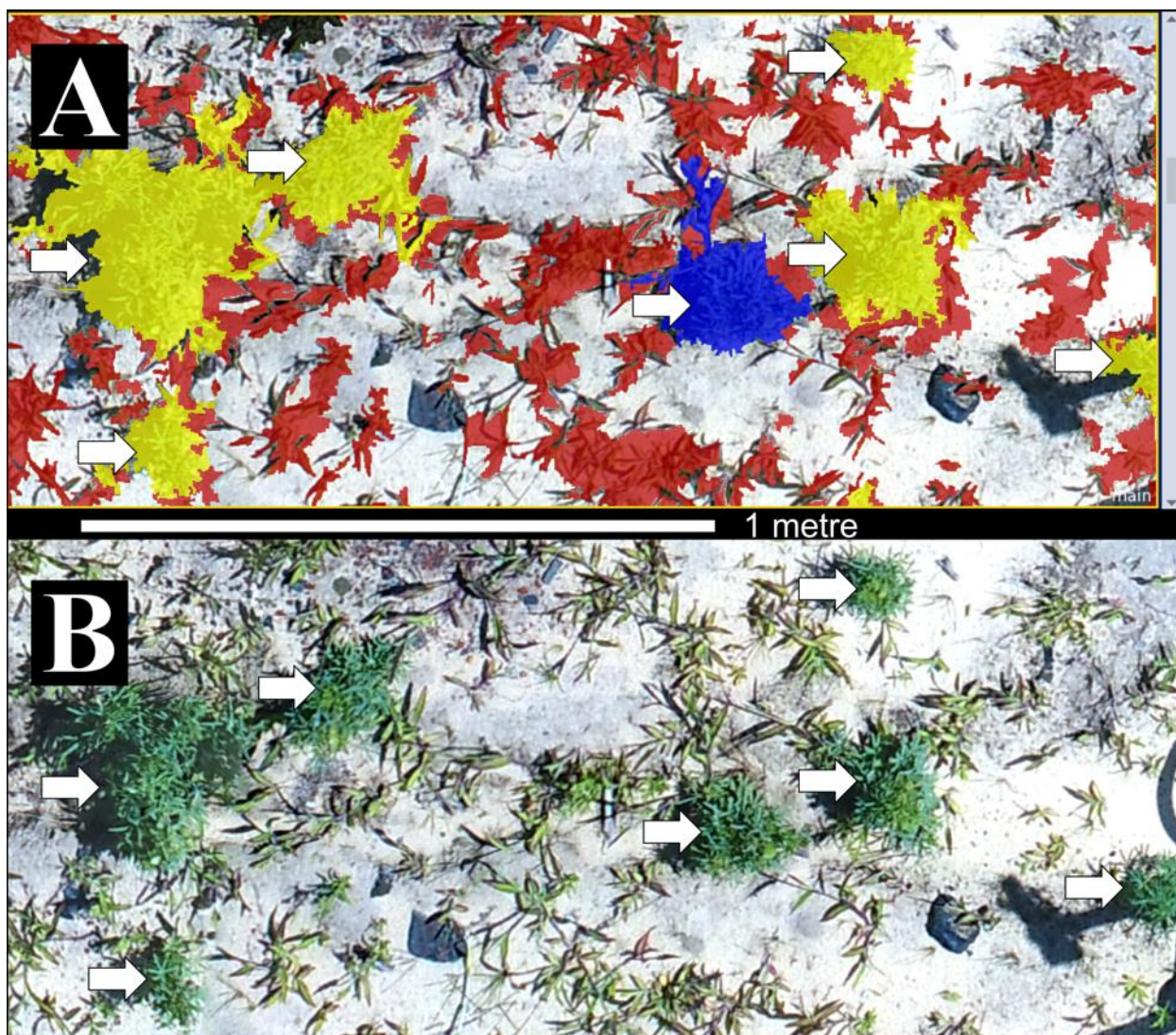
Figure S2. Example output image of a processed target area identifying seedlings from eCognition rulesets, highlighting classes '*definitely target*' (yellow) and '*non-target grasses*' (red), as well as 'missed target' (blue) manually identified post-processing (A), with corresponding unprocessed image target area (B) in which target seedlings have been manually identified (annotated arrows). Image taken from an altitude of 5 m with a DJI Phantom 4 Pro UAV.