**Supplementary Material 2.** Results of benchmarking test on 109 images representing 27 species shared by WeedScan and Seek.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Species** | **File name** | **Contributor** | **WeedScan inference** | **Confidence** | **Correct?** | **Seek inference** | **Confidence** | **Correct?** |
| *Ailanthus altissima* (Mill.) Swingle | Sim Ailanthus altissima.JPG | CSIRO | *Ailanthus altissima* | 0.597 | yes | *Ailanthus altissima* | 0.544 | yes |
| *Bidens pilosa* L. | IMG\_2015 Bidens.JPG | CSIRO | *Bidens pilosa* | 0.987 | yes | *Bidens pilosa* | 0.978 | yes |
| *Campsis radicans* (L.) Bureau | Big Campsis radicans.JPG | CSIRO | *Campsis radicans* | 0.977 | yes | *Campsis radicans* | 0.892 | yes |
| *Capsella bursa-pastoris* (L.) Medik. | DSC00549.JPG | CSIRO | *Capsella bursa-pastoris* | 0.926 | yes | *Capsella bursa-pastoris* | 0.864 | yes |
|  | DSC00563.JPG | CSIRO | *Capsella bursa-pastoris* | 1.000 | yes | *Capsella bursa-pastoris* | 0.736 | yes |
|  | DSC00577.JPG | CSIRO | *Capsella bursa-pastoris* | 0.860 | yes | *Capsella bursa-pastoris* | 0.900 | yes |
|  | DSC00578.JPG | CSIRO | *Capsella bursa-pastoris* | 0.994 | yes | *Capsella bursa-pastoris* | 0.875 | yes |
|  | DSC00594.JPG | CSIRO | *Capsella bursa-pastoris* | 0.998 | yes | *Capsella bursa-pastoris* | 0.903 | yes |
|  | DSC00595.JPG | CSIRO | *Capsella bursa-pastoris* | 0.982 | yes | *Capsella bursa-pastoris* | 0.867 | yes |
|  | IMG\_4252.JPG | NSW DPI | *Asparagus declinatus* | 0.584 |  | *Capsella bursa-pastoris* | 0.832 | yes |
|  | IMG\_4254.JPG | NSW DPI | *Capsella bursa-pastoris* | 0.914 | yes | *Erigeron canadensis* | 0.676 |  |
| *Chenopodium album* L. | Che Chenopodium cf album.JPG | CSIRO | *Chenopodium album* | 0.998 | yes | *Chenopodium album* | 0.883 | yes |
|  | Che Chenopodium.JPG | CSIRO | *Chenopodium album* | 0.836 | yes | *Chenopodium album* | 0.910 | yes |
| *Cichorium intybus* L. | DSCN6391 Cichorium intybus.JPG | CSIRO | *Cichorium intybus* | 0.842 | yes | *Cichorium intybus* | 0.889 | yes |
|  | IMG\_3726 Cichorium.JPG | CSIRO | *Cichorium intybus* | 0.339 | yes | *Cichorium intybus* | 0.877 | yes |
|  | IMG\_4059 Cichorium.JPG | CSIRO | *Dimorphotheca ecklonis* | 0.365 |  | *Cichorium intybus* | 0.860 | yes |
| *Cirsium arvense* (L.) Scop. | SS852093 Cirsium.JPG | CSIRO | *Cirsium arvense* | 0.995 | yes | *Cirsium arvense* | 0.905 | yes |
| *Conium maculatum* L. | IMG\_0561.JPG | CSIRO | *Conium maculatum* | 0.603 | yes | *Larrea tridentata* | 0.462 |  |
|  | IMG\_0562.JPG | CSIRO | *Conium maculatum* | 0.825 | yes | *Conium maculatum* | 0.926 | yes |
|  | IMG\_0570.JPG | CSIRO | *Conium maculatum* | 0.999 | yes | *Conium maculatum* | 0.905 | yes |
|  | IMG\_0571.JPG | CSIRO | *Conium maculatum* | 1.000 | yes | *Conium maculatum* | 0.901 | yes |
| *Convolvulus arvensis* L. | Con Convolvulus arvensis.JPG | CSIRO | *Convolvulus arvensis* | 0.367 | yes | *Convolvulus arvensis* | 0.861 | yes |
|  | CWXM7858.JPG | NSW DPI | *Convolvulus arvensis* | 0.975 | yes | *Convolvulus arvensis* | 0.867 | yes |
|  | FFVG9852.JPG | NSW DPI | *Convolvulus arvensis* | 0.925 | yes | *Convolvulus arvensis* | 0.880 | yes |
|  | ONCI5836.JPG | NSW DPI | *Convolvulus arvensis* | 0.494 | yes | *Convolvulus arvensis* | 0.915 | yes |
|  | UJWX9133.JPG | NSW DPI | *Convolvulus arvensis* | 0.973 | yes | *Convolvulus arvensis* | 0.886 | yes |
| *Crataegus monogyna* Jacq. | Ros Crataegus monogyna.JPG | CSIRO | *Crataegus monogyna* | 0.991 | yes | *Crataegus monogyna* | 0.937 | yes |
| *Echium vulgare* L. | Cooma 003.jpg | NSW DPI | *Echium vulgare* | 0.998 | yes | *Echium vulgare* | 0.386 | yes |
|  | Cooma 020.jpg | NSW DPI | *Echium vulgare* | 1.000 | yes | *Echium vulgare* | 0.819 | yes |
| *Erigeron canadensis* L. | Ast Conyza canadensis.JPG | CSIRO | *Erigeron canadensis* | 0.999 | yes | *Erigeron canadensis* | 0.865 | yes |
|  | IMG\_0085.JPG | NSW DPI | *Parthenium hysterophorus* | 0.556 |  | *Erigeron canadensis* | 0.928 | yes |
|  | IMG\_0095.JPG | NSW DPI | *Parthenium hysterophorus* | 0.862 |  | *Erigeron canadensis* | 0.956 | yes |
| *Galium aparine* L. | DSC00545.JPG | CSIRO | *Crataegus monogyna* | 0.699 |  | *Galium aparine* | 0.706 | yes |
|  | DSC00546.JPG | CSIRO | *Galium aparine* | 0.616 | yes | *Galium aparine* | 0.858 | yes |
|  | DSC00566.JPG | CSIRO | *Galium aparine* | 0.999 | yes | *Galium aparine* | 0.859 | yes |
|  | DSC00579.JPG | CSIRO | *Galium aparine* | 0.255 | yes | *Galium aparine* | 0.625 | yes |
|  | DSC00580.JPG | CSIRO | *Galium aparine* | 0.933 | yes | *Eschscholzia californica* | 0.176 |  |
|  | DSC00581.JPG | CSIRO | *Galium aparine* | 1.000 | yes | *Galium aparine* | 0.852 | yes |
|  | Rub Galium aparine.JPG | CSIRO | *Galium aparine* | 0.723 | yes | *Galium aparine* | 0.552 | yes |
| *Hedera helix* L. | DSC00551.JPG | CSIRO | *Hedera helix* | 0.997 | yes | *Hedera helix* | 0.873 | yes |
|  | DSC00552.JPG | CSIRO | *Hedera helix* | 1.000 | yes | *Hedera helix* | 0.899 | yes |
|  | DSC00556.JPG | CSIRO | *Hedera helix* | 1.000 | yes | *Hedera helix* | 0.923 | yes |
|  | DSC00557.JPG | CSIRO | *Hedera helix* | 1.000 | yes | *Hedera helix* | 0.865 | yes |
|  | DSC00558.JPG | CSIRO | *Hedera helix* | 0.999 | yes | *Hedera helix* | 0.893 | yes |
|  | DSC00561.JPG | CSIRO | *Hedera helix* | 0.994 | yes | *Hedera helix* | 0.848 | yes |
|  | DSC00587.JPG | CSIRO | *Hedera helix* | 0.990 | yes | *Hedera helix* | 0.771 | yes |
|  | DSC00588.JPG | CSIRO | *Hedera helix* | 0.993 | yes | *Hedera helix* | 0.942 | yes |
|  | DSC00589.JPG | CSIRO | *Hedera helix* | 0.989 | yes | *Hedera helix* | 0.853 | yes |
|  | DSC00590.JPG | CSIRO | *Hedera helix* | 0.968 | yes | *Hedera helix* | 0.967 | yes |
|  | DSC00591.JPG | CSIRO | *Hedera helix* | 1.000 | yes | *Hedera helix* | 0.886 | yes |
| *Hypericum perforatum* | Hyp Hypericum perforatum.JPG | CSIRO | *Hypericum perforatum* | 1.000 | yes | *Hypericum perforatum* | 0.873 | yes |
|  | Hypericum perforatum.JPG | CSIRO | *Hypericum perforatum* | 1.000 | yes | *Hypericum perforatum* | 0.930 | yes |
|  | P3082458.JPG | CSIRO | *Hypericum perforatum* | 0.993 | yes | *Hypericum perforatum* | 0.874 | yes |
| *Lantana camara* L. | IMG\_1812.JPG | NSW DPI | *Lantana camara* | 0.999 | yes | *Lantana camara* | 0.856 | yes |
|  | IMG\_1814.JPG | NSW DPI | *Lantana camara* | 0.987 | yes | *Lantana camara* | 0.906 | yes |
|  | IMG\_2555.JPG | NSW DPI | *Lantana camara* | 1.000 | yes | *Lantana camara* | 0.917 | yes |
|  | IMG\_7870.JPG | NSW DPI | *Lantana camara* | 0.999 | yes | *Lantana camara* | 0.799 | yes |
|  | IMG\_7878.JPG | NSW DPI | *Lantana camara* | 0.999 | yes | *Lantana camara* | 0.930 | yes |
|  | IMG\_7881.JPG | NSW DPI | *Lantana camara* | 1.000 | yes | *Lantana camara* | 0.900 | yes |
|  | IMG\_7883.JPG | NSW DPI | *Lantana camara* | 0.999 | yes | *Lantana camara* | 0.907 | yes |
| *Leucanthemum vulgare* Lam. | IMG\_0468.JPG | NSW DPI | *Leucanthemum vulgare* | 0.611 | yes | *Leucanthemum vulgare* | 0.294 | yes |
|  | IMG\_0469.JPG | NSW DPI | *Leucanthemum vulgare* | 0.730 | yes | *Bidens pilosa* | 0.457 |  |
|  | IMG\_9603.JPG | NSW DPI | *Leucanthemum vulgare* | 0.999 | yes | *Leucanthemum vulgare* | 0.905 | yes |
|  | Leucanthemum vulgare - alongside Forest Way, NW of Back River NR - JRHosking 3917 - flowerhead from above 1 image by JRHosking on 20 Jan 2016.jpg | NSW DPI | *Leucanthemum vulgare* | 0.997 | yes | *Leucanthemum vulgare* | 0.880 | yes |
|  | Leucanthemum vulgare - alongside Forest Way, NW of Back River NR - JRHosking 3917 - involucral bracts 2 image by JRHosking on 20 Jan 2016.jpg | NSW DPI | *Leucanthemum vulgare* | 0.957 | yes | *Leucanthemum vulgare* | 0.755 | yes |
|  | Leucanthemum vulgare - alongside Forest Way, NW of Back River NR - JRHosking 3917 - plant in situ 2 image by JRHosking on 20 Jan 2016.jpg | NSW DPI | *Moraea miniata* | 0.772 |  | *Leucanthemum vulgare* | 0.667 | yes |
|  | Leucanthemum vulgare - alongside Forest Way, NW of Back River NR - JRHosking 3917 - rosette leaves image by JRHosking on 20 Jan 2016.jpg | NSW DPI | *Leucanthemum vulgare* | 0.724 | yes | *Leucanthemum vulgare* | 0.771 | yes |
| *Lythrum salicaria* L. | Lyt Lythrum salicaria.JPG | CSIRO | *Lythrum salicaria* | 0.999 | yes | *Lythrum salicaria* | 0.877 | yes |
| *Phragmites australis* (Cav.) Trin. ex Steud. | Poa Phragmites australis.JPG | CSIRO | *Phragmites australis* | 0.517 | yes | *Phragmites australis* | 0.865 | yes |
| *Plantago lanceolata* L. | DSC00547.JPG | CSIRO | *Plantago lanceolata* | 0.999 | yes | *Plantago lanceolata* | 0.833 | yes |
|  | DSC00582.JPG | CSIRO | *Plantago lanceolata* | 0.762 | yes | *Plantago lanceolata* | 0.919 | yes |
|  | DSC00583.JPG | CSIRO | *Plantago lanceolata* | 0.997 | yes | *Plantago lanceolata* | 0.979 | yes |
|  | IMG\_2827.JPG | NSW DPI | *Plantago lanceolata* | 0.998 | yes | *Plantago lanceolata* | 0.792 | yes |
|  | SAM\_4349.JPG | NSW DPI | *Plantago lanceolata* | 0.450 | yes | *Plantago lanceolata* | 0.827 | yes |
| *Ranunculus repens* L. | IMG\_0582.JPG | CSIRO | *Ranunculus repens* | 0.956 | yes | *Ranunculus repens* | 0.834 | yes |
|  | IMG\_0583.JPG | CSIRO | *Ranunculus repens* | 0.820 | yes | *Ranunculus repens* | 0.914 | yes |
|  | IMG\_0584.JPG | CSIRO | *Ranunculus repens* | 0.947 | yes | *Ranunculus repens* | 0.798 | yes |
| *Reynoutria japonica* Houtt. | Pol Reynoutria japonica.JPG | CSIRO | *Reynoutria japonica* | 0.999 | yes | *Reynoutria japonica* | 0.975 | yes |
| *Ricinus communis* L. | Eup Ricinus communis Carmencita rot.JPG | CSIRO | *Ricinus communis* | 0.977 | yes | *Ricinus communis* | 0.875 | yes |
| *Sonchus asper* (L.) Hill | Ast Sonchus cf asper.JPG | CSIRO | *Sonchus asper* | 1.000 | yes | *Sonchus asper* | 0.884 | yes |
|  | Asteraceae Sonchus asper.JPG | CSIRO | *Sonchus asper* | 0.999 | yes | *Sonchus asper* | 0.898 | yes |
|  | IMG\_0015.JPG | NSW DPI | *Sonchus asper* | 1.000 | yes | *Sonchus asper* | 0.833 | yes |
|  | IMG\_2184.JPG | NSW DPI | *Sonchus asper* | 0.999 | yes | *Sonchus asper* | 0.807 | yes |
|  | IMG\_2231.JPG | NSW DPI | *Sonchus asper* | 1.000 | yes | *Sonchus asper* | 0.907 | yes |
|  | IMG\_9913.JPG | NSW DPI | *Sonchus asper* | 0.845 | yes | *Cirsium arvense* | 0.168 |  |
| *Sonchus oleraceus* L. | Ast Sonchus oleraceus.JPG | CSIRO | *Sonchus oleraceus* | 1.000 | yes | *Sonchus oleraceus* | 0.944 | yes |
|  | DSC00555.JPG | CSIRO | *Hirschfeldia incana* | 0.699 |  | *Popillia japonica* | 0.209 |  |
|  | DSC00559.JPG | CSIRO | *Sonchus oleraceus* | 0.991 | yes | *Ailanthus altissima* | 0.151 |  |
|  | DSC00560.JPG | CSIRO | *Sonchus oleraceus* | 0.582 | yes | *Cirsium arvense* | 0.113 |  |
|  | DSC00562.JPG | CSIRO | *Sonchus oleraceus* | 0.999 | yes | *Sonchus oleraceus* | 0.498 | yes |
|  | DSC00565.JPG | CSIRO | *Sonchus oleraceus* | 0.917 | yes | *Sonchus oleraceus* | 0.562 | yes |
|  | IMG\_0421 Sonchus oleraceus.JPG | CSIRO | *Sonchus oleraceus* | 0.980 | yes | *Sonchus oleraceus* | 0.929 | yes |
|  | IMG\_4053.JPG | NSW DPI | *Sonchus oleraceus* | 0.986 | yes | *Sonchus oleraceus* | 0.879 | yes |
|  | IMG\_4119.JPG | NSW DPI | *Sonchus oleraceus* | 0.975 | yes | *Sonchus oleraceus* | 0.399 | yes |
|  | IMG\_4122.JPG | NSW DPI | *Sonchus oleraceus* | 0.997 | yes | *Sonchus oleraceus* | 0.937 | yes |
|  | IMG\_4160.JPG | NSW DPI | *Sonchus oleraceus* | 0.982 | yes | *Sonchus oleraceus* | 0.819 | yes |
| *Taraxacum officinale* (L.) Weber ex F.H.Wigg. | DSC00541.JPG | CSIRO | *Taraxacum officinale* | 0.756 | yes | *Taraxacum officinale* | 0.906 | yes |
|  | DSC00542.JPG | CSIRO | *Taraxacum officinale* | 0.897 | yes | *Taraxacum officinale* | 0.717 | yes |
|  | DSC00550.JPG | CSIRO | *Taraxacum officinale* | 0.989 | yes | *Taraxacum officinale* | 0.938 | yes |
|  | DSC00564.JPG | CSIRO | *Taraxacum officinale* | 0.817 | yes | *Taraxacum officinale* | 0.875 | yes |
|  | DSC00575.JPG | CSIRO | *Taraxacum officinale* | 0.984 | yes | *Taraxacum officinale* | 0.895 | yes |
|  | DSC00576.JPG | CSIRO | *Taraxacum officinale* | 0.950 | yes | *Hypochaeris radicata* | 0.367 |  |
|  | DSC00584.JPG | CSIRO | *Taraxacum officinale* | 0.897 | yes | *Taraxacum officinale* | 0.882 | yes |
| *Vinca major* L. | Apo Vinca major.JPG | CSIRO | *Vinca major* | 1.000 | yes | *Vinca major* | 0.869 | yes |
|  | DSC00543.JPG | CSIRO | *Vinca major* | 0.996 | yes | *Vinca major* | 0.867 | yes |
|  | DSC00544.JPG | CSIRO | *Vinca major* | 1.000 | yes | *Vinca major* | 0.901 | yes |
|  | DSC00592.JPG | CSIRO | *Vinca major* | 1.000 | yes | *Vinca major* | 0.803 | yes |
|  | DSC00593.JPG | CSIRO | *Vinca major* | 1.000 | yes | *Vinca minor* | 0.481 |  |
|  | IMG\_2029.JPG | CSIRO | *Vinca major* | 0.999 | yes | *Vinca major* | 0.607 | yes |