CENTRE FOR
INVASIVE SPECIES SOLUTIONS
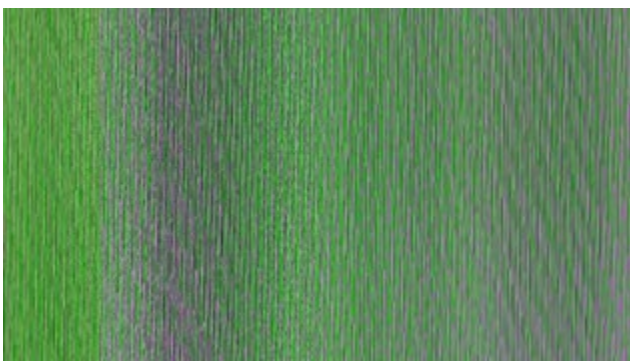
Frequently asked questions

WHAT IS WEEDSCAN?

WeedScan is Australia's first AI weed identification and management app. It is an identification, alert, and recording system for priority Australian weeds that connects people managing weeds in their local area.

The 459 weeds identifiable by the AI model are environmental and agricultural weeds, particularly those that are emerging and expanding their range. **WeedScan is currently only able to identify a small number of common garden weeds; future WeedScan editions aim to include a more diverse range of weed including common garden weeds.** It is an app built by Australians tailored to Australian conditions.

WHAT VERSION OF ANDROID AND IOS DO I NEED TO RUN WEEDSCAN?

WeedScan will only function as desired on devices with Android 11 and above, and on IOS devices which are still supported by Apple. Using Android version 10 or lower will result in 'image tearing', as shown below. This is due to changes to imaging software between older and newer versions. In rare cases, the app does not work on some devices with Android 11 and above.

WHY USE WEEDSCAN?

The WeedScan mobile app and web application have three key features to improve weed management. It uses an AI model to make weed identification easy (particularly emerging and expanding weeds that may not be generally known), links users to relevant State government or WeedsAustralia weed profile and management information, enables users to share weed records within a WeedScan Group, and sends alerts to State or local weed and biosecurity officers if a high priority weed has been identified to enable quick follow up action.

HOW DOES THE WEEDSCAN AI MODEL WORK?

WeedScan uses an artificial intelligence model trained by CSIRO on over 120,000 weed images, and field tested across Australia by scientists, farmers, community groups, and weed and natural resource management officers.

The AI model in the WeedScan app examines the live video input from the camera of a mobile device, providing constantly updated identification suggestions with degrees of confidence while the user explores a weed.

Users can also upload digital photographs of suspect weeds directly to the WeedScan app and website. WeedScan then assesses the images and generates plant identification suggestions for the user with degrees of confidence for each suggestion.

WHAT MAKES WEEDSCAN DIFFERENT TO OTHER PLANT IDENTIFICATION APPS?

Apps like iNaturalist, PlantSnap and PictureThis have revolutionised plant identification through artificial intelligence. However, many are paywalled and generally do not tell users whether the plant is actually a weed and how to manage it.

WeedScan is different. The app is free and the weed ID suggestions it generates are also linked to government and other authoritative weed profiles and management information.

WeedScan prompts users to record the identification of priority and other weeds. If the user chooses to make a record, the app may alert government staff if that weed is a high priority (eg. emerging weed targeted for eradication).

The WeedScan Groups feature allows established and new groups and organisations to target and cooperatively work together on specific weeds and in particular locations. This includes the ability to share weed location data, and to export weed location data files to help weed planning and management.

WHO DEVELOPED WEEDSCAN?

WeedScan has been developed by the NSW Department of Primary Industries, CSIRO, the South Australian, Queensland and Victorian Governments, and the Atlas of Living Australia through the Centre for Invasive Species Solutions. Funding support was provided by the Australian Government National Landcare Program.

WHAT WEEDS CAN THE APP IDENTIFY?

The WeedScan app and web application can identify 459 environmental, aquatic and agricultural weeds. The app includes a weed list of weed species identifiable by the AI model.

HOW DID WE CHOOSE THE WEED SPECIES INCLUDED IN WEEDSCAN?

Most priority weed species were nominated by state and territory governments. Many are species that are spreading into new regions and some are biosecurity risks that are currently absent from Australia, so reporting them can help detect them early to allow rapid responses and eradication.

WHY AREN'T ALL AUSTRALIAN WEEDS IN WEEDSCAN?

The greatest challenge in training an AI model is to obtain enough high quality training images of each weed species, which is difficult for rarer or geographically restricted weeds. Also, a key purpose of WeedScan is to report weeds that can still be contained or eradicated, and therefore this edition of WeedScan focused on a priority list of weeds that are new and emerging weeds instead of attempting to achieve complete coverage. The aim is to add additional weeds into future WeedScan editions.

WILL WEEDSCAN HELP ME TO IDENTIFY PLANTS THAT ARE NOT A PRIORITY WEED?

In addition to the 268 priority weeds, the WeedScan AI model can identify 190 other weeds. These are environmental and agricultural weeds. The current set of weeds in the WeedScan AI model only include a small number of common garden weeds, such as sowthistle, prickly lettuce and fleabane.

WHAT DOES IT MEAN IF WEEDSCAN SUGGESTS AN IDENTIFICATION THAT IS INCORRECT?

Similar to a human, an AI model only knows what it has learned. Therefore, it is, for example, possible that the model will suggest wrong identifications for a fruiting weed if no or too few images of the fruiting stage of the weed were collected to train the AI model.

The model may misidentify native plants as the most similar-looking weed it knows with at least some reduced level of confidence.

It is therefore critical that users double check identification

suggestions against weed profiles including example images before creating a weed record. The profiles can be accessed by tapping identification suggestions

WHY WON'T WEEDSCAN PROVIDE SUGGESTIONS ON THE IDENTITY OF PLANTS OTHER THAN WEED SPECIES LABELLED IDENITFIABLE?

WeedScan can only provide suggested identifications for the 459 weeds that are included in the AI model. More weeds will be included in the model and future WeedScan editions once there are enough images of them to train the AI model.

WHY DOES WEEDSCAN PROVIDE MULTIPLE SPECIES SUGGESTIONS?

In most cases the AI model will not be 100% sure of a weed species ID. Therefore, it will also list other suggestions of species that the image may resemble. These suggestions can also provide clues for users to narrow their search for a correct weed ID. If the model is frequently changing weed species suggestions, getting a different angle or focusing on distinguishing features of the weed, for example flowers or fruits, can be helpful.

WHAT INFORMATION IS USEFUL TO ADD INTO A WEED RECORD?

Any information that may help a weed officer or fellow WeedScan Group member find the exact spot, information on the size of an infestation, or morphological details that may help them confirm or second-guess the identification suggestion.

IS THERE A VERIFICATION PROCESS FOR SUBMITTED RECORDS?

Images with a high AI confidence will be uploaded to both the WeedScan database and for public records to the Atlas of Living Australia. Images with low AI confidence will only be uploaded to the WeedScan database, and verified separately by a human.

WHAT HAPPENS IF I SUBMIT A PHOTO OF SOMETHING OTHER THAN A PLANT?

The WeedScan AI model has only been trained on weeds and a small number of native lookalikes, and it will always suggest identifications for these plant species, although at lower confidence than the actual weed. It is therefore possible to trick the app into creating a record of something other than a weed. Administrators will remove abusive records from the WeedScan database.

CAN I CHANGE THE WEEDSCAN RECORD AFTER I HAVE SUBMITTED IT?

After taking a weed image and before the record is created, you can suggest a different species than identified by the AI model, leave additional comments, make the observation private, or delete the record. You cannot change the original reported location. Once a record is created, it cannot be deleted.

HOW WILL MY RECORDS BE USED?

Your records will be recorded to provide data on weeds to state coordinators and local weeds officers. Biosecurity officers may be able to use the location data to manage priority weed species.

IF I SUBMIT A WEEDSCAN RECORD WILL I BE CONTACTED BY A LOCAL WEEDS OFFICER?

You will only be contacted about a weed record if, firstly, you are not an anonymous user; secondly, if it is a priority weed in your region; and thirdly, your local weeds officer needs more information that you have not included in your observation.

WHO HAS ACCESS TO MY CONTACT INFORMATION?

The WeedScan national administrator, state coordinators and biosecurity officers may access your contact information which you provide to WeedScan as a registered user, unless you choose to upload anonymously. They may contact you to follow up on certain priority weed records. The WeedScan Privacy Policy is at: https://weedscan.org.au/Privacy

HOW IS MY PRIVACY PROTECTED?

The Centre is committed to the protection of privacy and is bound by applicable privacy and data protection legislation, including the Australian Privacy Principles set out in the Privacy Act 1988 (Cth). The Centre will never collect Sensitive Information in connection with WeedScan.

Where appropriate, information collected by WeedScan will be anonymised before use or disclosure so that it no longer contains or constitutes Personal Information.

All weed records are visible to the relevant weed authorities, but you have the choice to make the record publicly visible or not.

For records designated by the use to be public data, this includes species identification and truncated location data on invasive species on the WeedScan or Atlas of Living Australia web site.

The WeedScan Privacy Policy is at: https://weedscan.org.au/Privacy.

Additionally, you do not have to submit information such as your name with your record if you choose to remain an anonymous user.

HOW CAN I CONTRIBUTE PHOTOS TO IMPROVE WEEDSCAN?

Please email weeds@invasives.com.au to organize contributing your photos, which may be used for training the WeedScan AI model in the future.

WHAT IF I RUN INTO UNEXPECTED PROBLEMS WHILE USING THE APP?

Please reach out to weeds@invasives.com.au with information on the error, and if possible your device model, and a screen shot.

Learn more

e: weeds@invasives.com.au

w: weedscan.org.au