Transcript

**Environmental Biosecurity Webinar of Atlas of Living Australia supported by the Department of Agriculture, Fisheries and Forestry**

Atlas of Living Australia

**Biosecurity Alerts System in partnership with DAFF**

Presented in 2023

**Presented by:**

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[*Opening visual of slide with text saying, ‘Atlas of Living Australia (ala.org.au) with Crest (logo),’ ‘Atlas of Living Australia, ‘Biosecurity Alerts System in partnership with DAFF, ‘Webinar 6 – Overview’, ‘2023’*]

**Andrew:**

Thanks everyone for having me here today to talk to you about our work in setting up biosecurity alerts with the Environmental Biosecurity Office. So, I just first want to acknowledge the traditional owners of the land. I sit here in Canberra today, but really traditional owners all around Australia and the lands and the biodiversity that contributes to the ALA and our country.

Hopefully, many of you know about the Atlas of Living Australia but in case you don't, it's Australia's national biodiversity data infrastructure. So, we mainly have records, digital records, of preserved specimens and human observations of living animals, plants, fungi, out in the wild, and we try and start to connect this data with things like their location, images, genomic data, environmental DNA, and bring this all together in one location where you can go and look for species or information that you're actually looking for.

This data is not generated by us. It comes from a range of data providers. So back about ten years ago when we started, it was very much focused around getting museum records digitized and uploaded. More recently spreading into universities, government departments and now Citizen Science is taking a big role in the data that we are seeing. So, this graph here on the left is really showing the growth of data within the ALA generally.

And in the last few years, we've really seen an exponential increase in the number of citizen science data that is being contributed into the ALA. So, in total, as Bertie mentioned before, we have over 130 million records and those records are coming in from over 850 different data suppliers all around Australia and a little bit internationally as well.

From a biosecurity perspective, where's this citizen science data actually coming from? Well, we're connected with biosecurity apps like FeralScan and WeedScan, but also the more general biodiversity apps like NatureMapr and iNaturalist, QuestaGame, eBird which are all detecting invasive species. So, with that much data, it really is no surprise that there's lots of invasive species in the ALA.

So, we've estimated that we've got over 2 million records of invasive species now. That's both exotic and natives, but outside of their natural range. And we do actually think that this is an underrepresentation of how frequently invasive species are actually detected in the environment. But still, there's a lot there and a lot of information that we can gather from those that we have.

So, with that much data, it's probably not surprising that we are also sometimes the first point where incursions are detected. So back in 2020 there was a detection of Asian shore crab that actually came up in the ALA and in a very early prototype of an alert system, we sent that through to CEBO and it turned out that was the first detection of that crab in Australia.

And as we dug into the data a bit more, we actually found that we already had records that were over six months old that were in our system that had come in from citizen science. So, detections like this is what led to the development of ALA’s Biosecurity Alert System. So, this system basically works through citizen science data. It's all aggregated into the Atlas of Living Australia.

We then check the records that come into the ALA against a list of species that our users are interested in. So, in this case, the Environmental Biosecurity Office, send us a list of most of the species that are on the Environmental Biosecurity list. We check when a new species actually comes in and a record is there. We'll then send an email alert out to the biosecurity manager to say there's something there, go and have a look at it.

So, this work has all been developed in partnership with the Environmental Biosecurity Office over a number of years, and their foundational funding of what we did really meant that we could start to grow this and build this into a robust system. More recently we’ve actually been able to leverage that investment through the Catalysing Australia's Biosecurity initiative and get additional investment from the CSIRO to start to expand this biosecurity alert system.

So, first thing here is when we actually send an email alert it looks like this image here in the slides. So, you get a list of the names that we're looking for, an idea of their location. You get an image, if that's being attached to the actual occurrence as well, and you can just click on this link and this will take you through to the ALA's record where you can also then navigate to the original data provider.

In this case here, these are records from iNaturalist. So through expanding this work we’ve now got 32 unique alert lists, which is going out to both the Commonwealth biosecurity agencies and some state and territory biosecurity agencies and one local government user as well. We've also been able to use this funding to start to build new features so we can now spatially delimit where alerts come from.

So, if you're a state or territory government, you may not want alerts outside of your own state and we can delimit to there. Or maybe you work for an environmental department dealing with national parks. You could send us a custom shapefile of your national park and we're able to just send you alerts from within that particular park as well.

So again, all of this work has been able to be leveraged from the funding from EBO as well as then contributions of Catalysing Australia's Biosecurity through CSIRO. So, are we detecting anything interesting? What's the impact of what we're actually doing? So, this is a case study that came up just recently in Queensland where there was a detection of the Opuntia cactus up around Harvey Bay and we were notified through ALA that they had actually mounted a response to this detection. When they went out, they found two plants and they confirmed that it was the cactus that they were concerned about.

They also found that there was a pot plant there which suggested to them that it was probably an illegal dumping of the cactus, and it turned out this was only the 11th detection of this species in southeast Queensland. So, the presence of this highly invasive species, that's a real concern and it could have spread further, but they were able to eradicate it on the spot.

So, this is a really important piece of the environmental biosecurity puzzle of being able to have this big picture, all this data coming in to one location, and alerts going out of it. So, the benefits of the system as we've got it, is that at the moment biosecurity departments who are receiving alerts, they can see reports from tens of thousands of active community members and all the reports are filtered to what they are looking for. Most importantly by delivering it via email and allowing really quick triage of these reports you can just look at the photos and if straight away, you know, it is not the species that you're concerned about, you can move on.

You're not having to navigate through many layers to actually get to the information that you need to make a decision. Another really important part of this system too, is that we connect you up with the data providers.

So, when reports come in through, say, iNaturalist, we encourage all of our biosecurity users to actually go log in to iNaturalist and use the communication functions that are actually within iNaturalist to talk to that user. Perhaps correct an ID if it's an incorrect ID. Or if it was a pest of concern, you could actually find out where they'd actually collected that pest from.

Can you go out? Did they take a sample? Can you find more of that particular species as well? And just finally, pretty much every state and territory in the Commonwealth has a strategy out there around everybody being responsible for biosecurity. And this really aligns with these community centric biosecurity strategies. So, I hope that I might have convinced you that you're interested in getting on board and just saying you may need to hold your horses for just a little bit longer.

Though I mentioned before we really first started working on this back in 2020. Right now, we're going about onboarding Commonwealth and state and territory users and continuing the development, particularly for the ability to scale the number of users we can handle. And then by the middle of next year, we really hope to be able to open this up to all local governments and also NGOs and other users working within the biosecurity space.

And if you do want to know more, don't hesitate to contact me. And again, just want to say thank you to the Environmental Biosecurity Office as well as CSIRO and NCRIS, who ultimately fund this and this would not be here without their support.

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