



CITIZEN SCIENCE

People power to observe and monitor nature



Acknowledgement

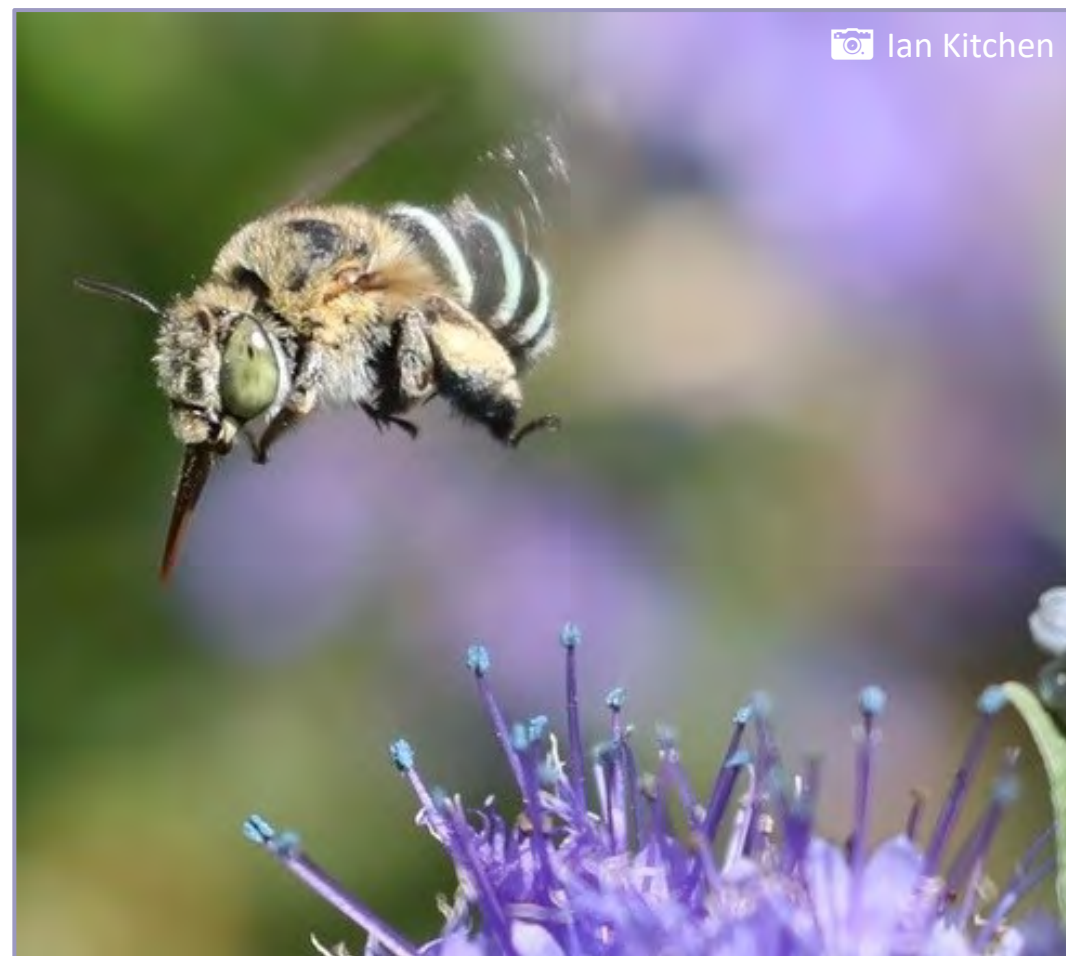
Hume City Council recognises the rich Aboriginal heritage within the municipality and acknowledges the Wurundjeri Woi Wurrung, which includes the Gunung Willam Balluk clan, as the Traditional Custodians of this land.

Council embraces Aboriginal and Torres Strait Islander living cultures as a vital part of Australia's identity and recognises, celebrates and pays respect to the existing family members of the Wurundjeri Woi Wurrung and to Elders past, present and future.



Overview

- [Biodiversity basics](#)
- [Why be a citizen scientist](#)
- [How to get involved](#)
- [Frogs](#)
- [Waterways](#)
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Biodiversity = Variety of Life

- Encompasses all of the different:
 - Species of animals, plants, fungi, and bacteria
 - Ecosystems including deserts, grasslands, bush, woodlands, rainforests, alpine, rivers, waterways, wetlands, estuaries, ocean, tropical reef, etc.
 - Genetics expressed within each species
 - Ecological functions, roles and services
- Provides our basic requirements for life - air, water, food
- We need nature to survive and thrive
- Nature needs us to take good care of it



Threats to Biodiversity

- **Loss of habitat – clearance of native vegetation**
 - Habitat fragmentation – small isolated populations of wildlife
 - Habitat degradation – reduces “carrying capacity”
- **Introduced species**
 - Competition – weeds, rabbits, deer, common myna, etc.
 - Predation – cats, foxes, rats
- **Climate change – drought, rainfall patterns, humidity, heat, frosts**
- **Fire regimes – extent, intensity, frequency**
- **Extinction debts – food webs, ecological function, resilience**
- **Pollution – litter, water quality, soil contaminates, light, sound**
- **Over-utilisation – poaching, unsustainable harvesting/ fishing**

Creeping baselines and perceptions of quality/species richness

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Citizen Science helps Biodiversity

- Everyday people helping to collect important data that scientists don't have the budget, time, or scope to collect by themselves
- Methods have scientific rigour to fill many knowledge gaps and reveal trends over time
- Understanding the occurrence and distribution of species is crucial for effective management and conservation
- Environmental data informs evidence-based policy decisions, priority funding investments, or development proposals/plans



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Observing Nature is Good for Us

- Numerous health-wellbeing benefits arise from connections with nature
- It's a transformative process for heads, hearts and hands
- Harnesses synergies and people power to make the world a better place
- Something fun, meaningful, interesting to do with others or on your own
- Warning ... it's addictive!



Personal Safety: Please Do!



- Be aware of:
 - Your surroundings and risks
 - Dangerous animals
 - Hazardous plants
- Be properly prepared for your outdoors activity
- Fully charge your phone
 - Has area got mobile coverage?
- Go with a buddy spotter, or inform others about your plans



Nature Ethics: Please Don't!



- Avoid trampling plants
- Do not collect specimens from wild unless have appropriate permit and approvals to do so
 - Do not pick wildflowers
- For listed-threatened species consider if it is appropriate to reveal exact location
 - Settings to make private observations, obscures the record in iNaturalist
- Minimise use of call playback
- Don't disturb breeding animals that are rearing their young



Portals to Nature

- Australian Citizen Science Association (ACSA)
[Victorian Chapter](#)
 - [Project Finder](#)
- Atlas of Living Australia
 - [For communities and schools](#)
- Victorian Government
[It's in our Nature](#)
- [Victorian Biodiversity Atlas](#)
- [NatureKit](#)
- State Wide Integrated Fauna and Flora Teams
([SWIFFT](#))



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Hume City's Citizen Science Aims



- Contribute to more positive environmental and biodiversity outcomes
- Foster a healthy, happy society; environmentally engaged communities
- Provide evidence that Gardens for Wildlife (G4W) does create habitat used by local wildlife



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G4W in Hume City [visit Council webpage](#)

- Organise a garden visit with volunteer Garden Guides to chat about making your garden more wildlife-friendly
- Receive a garden report with advice, support and resources
- Attend G4W workshops to develop your garden plans
- Participate at Greening events to receive free seedlings
- Contribute to citizen science and experience nature
- Become a volunteer Garden Guide yourself

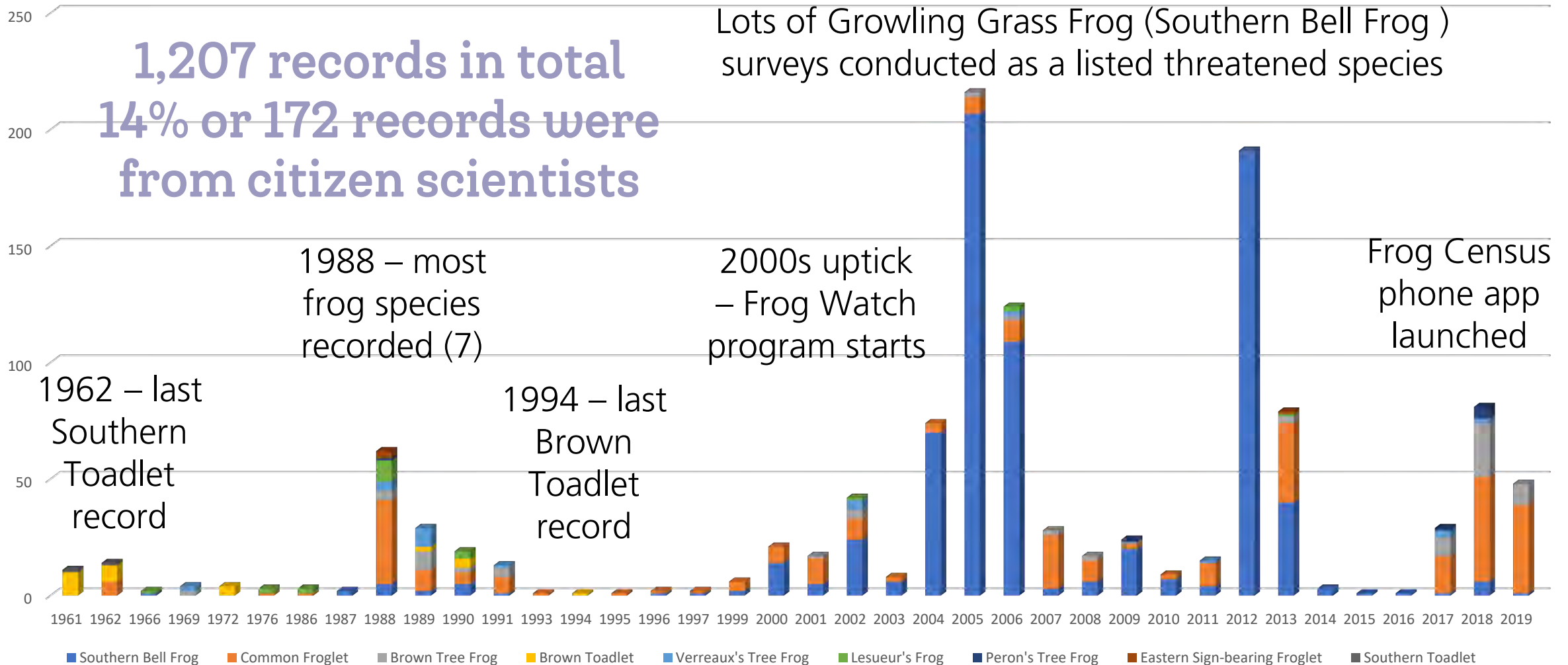


Frog Resources

- [Frog Census](#) app (greater Melbourne)
- [Frog ID](#) app (Australia)
- Melbourne Museum's [Field Guide to Victorian Fauna](#)
- Facebook pages or groups
 - [Frogs of Australia](#)
 - [Frogs Victoria](#)
 - [Melbourne Water Frog Census](#)
 - [National Frog Week Australia](#)



Number of frog records in Hume City 1961 to 2019 (source: [ALA](#))



Waterways

- Melbourne Water have lots of great [citizen science](#) opportunities on offer
 - [Frog Census](#)
 - [Platypus Census](#)
 - [Waterbug census](#) – biological indicators of water quality
 - [WaterWatch](#) – physical and chemical tests of water quality
 - [Litter Action](#)
 - [SaltWatch](#)



Grasslands

- Victorian Volcanic Plains ([VVP](#)) Bioregion
- [Volcanic eruptions](#) map
- [Grasslands](#): Biodiversity of South Eastern Australia app and website
- [VVP Grassland Conservation News](#) Facebook page



Pollination is an Ecological Service

- Wild Pollinator Count
 - 14-21 November 2021
 - 10-17 April 2022
 - Watch a single flowering plant for 10min and count all the different pollinators
- Australian Pollinator Week
 - 6-14 November 2021
- Banksia Garden's Bee Hotels citizen science trail
 - Jacana Wetlands iNaturalist



Pollinators are Pretty Too

- Butterflies Australia app
 - www.butterflies.org.au
- Facebook groups
 - [Australian butterflies and moths](#)
 - [Australian Entomological Society](#)
 - [Amateur Entomology Australia](#)
 - [Aussie Bee](#)



Bird Citizen Science

 Beverley Van Praagh



- [Birdata](#) (Birdlife Australia)
- [eBird](#) (global)
- National Bird Week
 - 3rd week in Oct
 - Aussie Bird Count
 - www.aussiebirdcount.org.au
- Unusual bird reports, Birdline Vic
 - www.ereamaea.com
- Friends of Merri Creek [BirdWatch](#)
- [Swift Parrot](#)
 - 24 April-6 June and 17 July-29 August
- Latham's Snipe
 - Aitken Creek, Craigieburn
 - Spring-summer flushing surveys
 - Sat 18 Sep, Sat 20 Nov & Sat 15 Jan 2022



Birding Resources

- Detailed field guides for Australian birds
 - Slater
 - Simpson and Day
 - Pizzey and Knight
 - Morcombe
 - Menkhorst, Rogers, Clarke, Davies, Marsack and Franklin
- [Birds of Hume](#) field guide



More Birding Resources



○ Websites

- www.birdlife.org.au
- [Ethical Birdwatching Guidelines](#)
- www.birdsinbackyards.net
- www.birdforum.net

○ Smart phone apps

- [Aussie Bird Count](#) (free)
- Melbourne Museum's [Field Guide to Victorian Fauna](#) (free)
- Michael Morcombe's [eGuide to Australian Birds](#) (~\$25)
- [Bird Journal](#)
- [Merlin](#) (free global bird ID)



Bird Webcams (Breeding Season)

- [Collins St Peregrine Falcons](#)
- [Orange Peregrine Falcons](#)
- [Sydney Olympic Park Sea Eagles](#)
- [Port Lincoln Osprey](#)
- [Royal Albatross New Zealand](#)
- [Hawk and Owl Trust England](#)
- [Bald Eagles USA](#)



Birding Facebook Pages or Groups



- [Australian Bird Identification](#)
- [Birdlife Australia](#)
- [Birds in Backyards](#)
- [Victorian Birders](#)
- [Bird Photography Australia](#)
- [Australian Bird Photography](#)
- [Crap Bird Photography](#)
- [Birds of Oz](#)
- [Bird the Feck at Home](#)



Platypus



- Ecologists spend long hours, cold nights setting nets across waterways
- DNA water sampling is revolutionising surveys
- Jackson's and Deep Creek
- Moonee Ponds Creek
 - Unconfirmed sightings near Koala Crescent in Oct 2020
- PlatypusSPOT - CESAR



Echidna

- [Echidna CSI](#) – Conservation Science Initiative
 - Submit pooh!
 - Submit photos
- [Facebook Page](#)
- [BioCollect](#) page on ALA
- [Fauna of Hume](#) field guide



Common Wombat

- Sighting at Merri Creek, Craigieburn
 - Monday 26 October 2020
 - As part of a bird survey
- Sadly, wombats are being killed on Donnybrook and Craigieburn East Roads
- WomSat
 - Tracking live and roadkill
 - Monitoring wombat health and spread of mange (disease)



Eastern Barred Bandicoots



- Extinct in the wild on the mainland, rely on feral-predator protected areas
- Woodlands Historic Park
- Important conservation project partnership
- Contact [Conservation Volunteers Australia](#)
- Spot-lighting, trapping and counting diggings



Brush-tailed Phascogale (Tuan)



- Roadkill specimen Mar2017
 - last seen 1860s
- 194 baited remote sensor cameras deployed
 - Woodlands Historic Park
 - Greenvale Recreation Reserve
 - 24 private properties along Deep Creek and Jackson's Creek
- 2,679 camera nights
 - Feb–Jun2018
- 294,479 images taken



Remote Censor Camera Results

- 3,007 mammal observations
- Common Brush-tailed Possum
 - 55% of observations
- Black Wallaby, Eastern Grey Kangaroo, Wombat, and Common Ring-tailed Possum detected at many sites
- Sugar Gliders, Echidna, Eastern Barred Bandicoot, and a microbat recorded at one site each
- Black Rats, Foxes (all sites)
Feral Cats, Rabbits, Hares (many sites)
Sambar Deer and Feral Pigs (few sites)
- 34 bird species, 364 observations
- No reptiles or frogs detected
- Invertebrates not reported
- No Brush-tailed Phascogales detected



Bats



- 13 species in Hume City
- Grey-headed Flying-fox counts
 - Melbourne colony, every month
- Bat box monitoring
 - Organ Pipes National Park
- **Bat Detectors**
 - Community groups have own equipment to record bat calls
 - Frequency of echo-location calls identifies each species



Introduced Species



- Identify new emerging weeds and pests before they get established
- [Weed Spotter](#)
- [FeralScan](#)
 - DeerScan
 - RabbitScan
 - FeralCatScab
 - FoxScan
 - MynaScan
 - FeralPigScan
 - FeralGoatScan



Other Citizen Science Opportunities

- Victorian National Parks Association ([VNPA](#))
- The Field Naturalists Club of Victoria ([FNCV](#))
- [EarthWatch Australia](#)
- [ClimateWatch](#)
- Phillip Island Nature Parks [SealSpotter](#)
- [Mt Rothwell](#)
- Mapping microplastics
 - www.ausmap.org
- [Fluker Posts](#) - photopoints



iNaturalist

Who you are

You'll need to make an **iNaturalist account** and please only post your own personal observations



Where you saw it

Record both the coordinates of the encounter as well as their accuracy. You can obscure the location from the public



What you saw

Choose a group of organisms like **butterflies** or better yet a specific organism like the **Monarch butterfly**. If you provide evidence you can leave this blank and the **community can help**



When you saw it

Record the date of your encounter, not the date you post it to iNaturalist



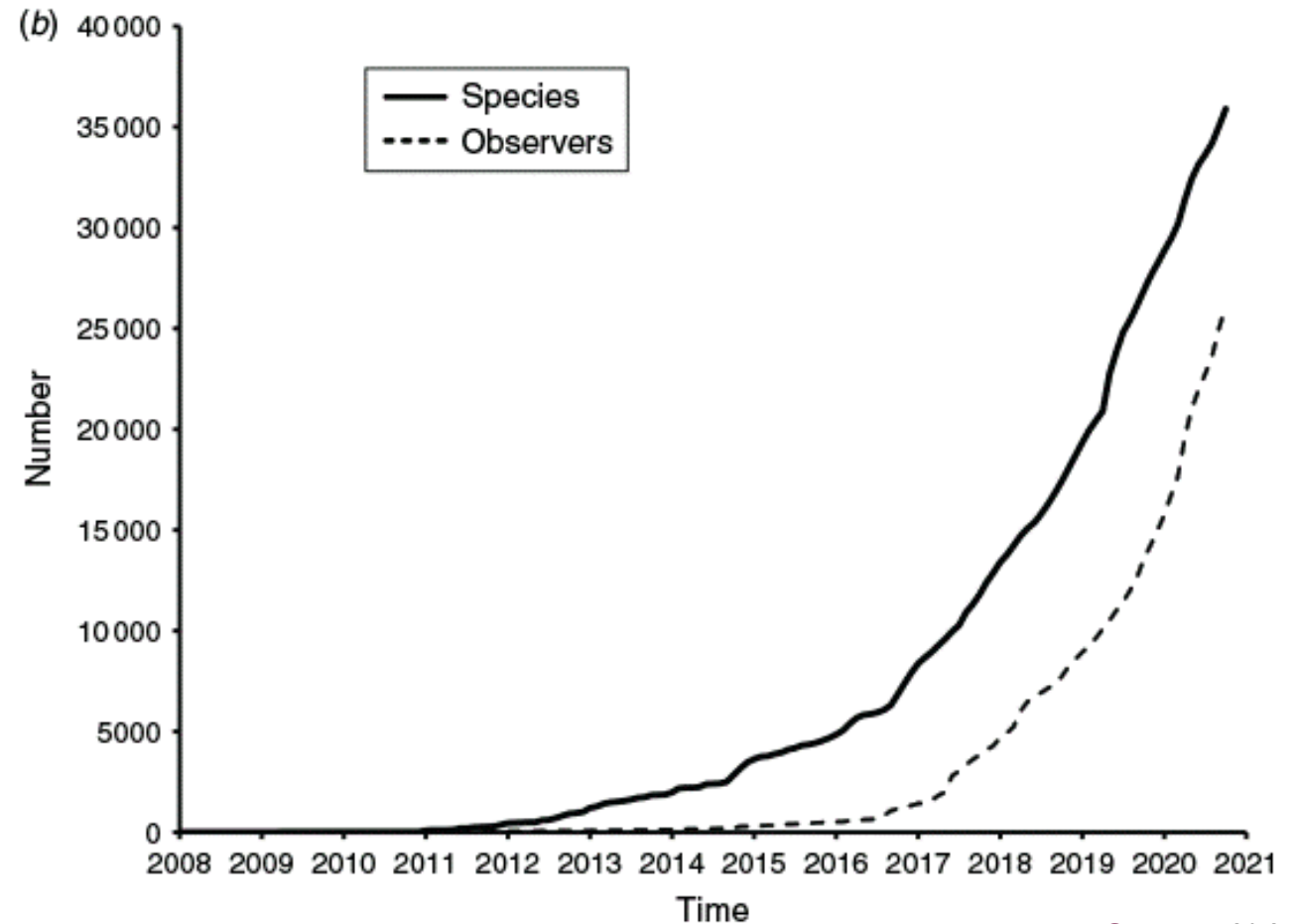
Evidence of what you saw

By including evidence like a **photo or sound**, the community can help add, improve, or confirm the identification of the organism you encountered. Help the community by taking clear well framed photos, by including multiple photos from different angles



iNaturalist Exponential Growth

- Globally
 - 1.4 million observers
 - 54 million observations
- Australia
 - 31,000 observers
 - 2 million observations
 - 38,000 species identified
 - In top 4 contributing nations
- 2019 collaboration with Atlas of Living Australia (ALA)



Source: ALA



Online iNaturalist Help

- Overview and getting started guide
<https://www.inaturalist.org/pages/getting+started>
- Video tutorials
<https://www.inaturalist.org/pages/video+tutorials>
- Help and Frequently Asked Questions
<https://www.inaturalist.org/pages/help>



Join iNaturalist projects



- [Hume City's Wildlife](#)
- [Fungimap Australia](#)
- [Wild Orchid Watch Australia](#)
- [Wild Pollinator Count](#)

- **City Nature Challenge**
 - 30 April to 3 May – take photos
 - 4 May to 9 May – run identification sessions
 - 2022 we'll be part of global effort



Take Identifiable Photos

- **Fill frame with the subject**
 - Avoid distant trees or far away birds
 - Use zoom function
 - Animal flight zones – the closer you move the more likely it will take off, employ the photographer's stalk – step pic step pic ...
- **In focus**
 - Crisp, clear features need to be in focus
 - Avoid very windy days, use your hand to hold the flower or plant still
 - Depth of field, where is focal point
- **Properly exposed**
 - Bright midday light can cause over-exposure flares. Use your shadow to reduce the light.
 - Overcast, cloudy light leads to dark, underexposed photos. Position sun behind you when taking photo.



More Tips for Good Observations



- **Take multiple photos**
 - Need multiple characteristics to help identify some organisms.
 - From different angles (top, bottom, side, front, back)
 - Plants – flowers/buds, fruits/seeds, form, leaves, bark/trunk
 - Fungi – side, top view, underside of gills
 - Add multiple photos of the same organism as the same observation
- **Focus on wild organisms**
 - Also take photos of weeds and introduced animals
 - Mark observations of houseplants, garden plants, pets, animals in zoo as “Captive/Cultivated” before uploading them.



Good iNaturalist Community Member

- Add identifications and respectfully agree or disagree with community opinions
- Manage data quality
- Only post your own pictures
- Only post appropriate content as people of all ages and backgrounds have access to this platform and project
- Don't photograph people's faces but hands are ok



iNaturalist Hume City Challenge

Species observations photo combos:

- in your garden, your street, and your closest park or creek
- in three different nature conservation reserves in Hume City
- at a grassland, a woodland and a wetland in Hume City
- all five vertebrates in the wild
 - a fish, amphibian, reptile, bird and mammal
- all the kingdoms of life
 - an animal, a plant, a fungi and protista (this last one is tricky)
- BioBingo Top 20
 - 3 fungi/lichen, 7 plants, 4 invertebrates, 3 birds, 1 mammal, 1 reptile and 1 frog (call recording accepted).



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Questions

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