Where's Weedy? Outlining the case for improved weed data aggregation to enhance on-ground outcomes for management

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Global change & biodiversity

"On a global basis… the two great destroyers of biodiversity are, first, habitat destruction &, second, invasion by exotic species."

- E.O. Wilson (1999)

The case for improved data aggregation

- Land managers & weed researchers are looking for publically available weed data to detect & prevent new weed incursions

The case for improved data aggregation

- Assumption: (herbaria) databases are representative ✗
  - lodged collections only, often biased
  - weeds generally under-represented
- NatureMap/FloraBase in WA

IBRA region	Total species	Weeds (%)	Tot herbarium records	Weed records (%)
Pilbara	2433*	4.9#	32478*	2.5
Chichester	1234	6.1	7916	2.4
Roebourne	1072	7.1	5633	5.6
Fortescue	923	3.6	2953	2.6
Hamersley	1522	4.1	15976	1.6

Data from WA Department of Parks and Wildlife NatureMap; *Data from ALA; #Data from WA Department of Parks and Wildlife Herbarium

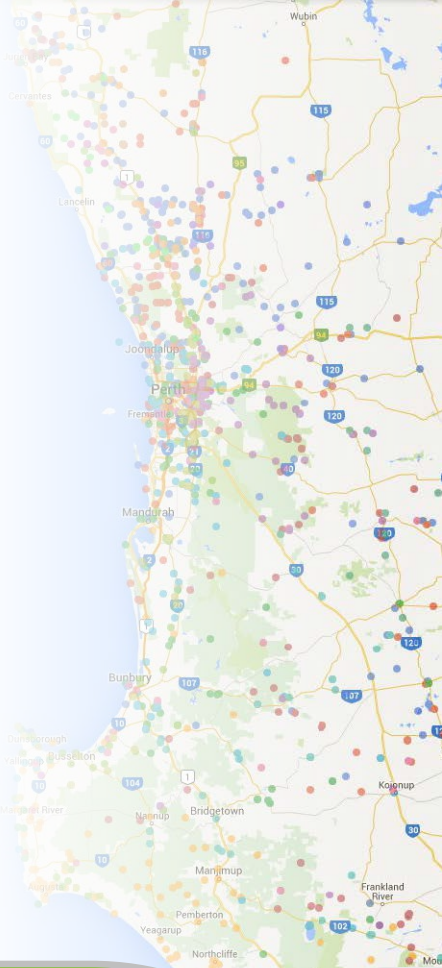
Dodd *et al*. (2016), Delisle *et al*. (2003)

Finding weed data outside herbaria

- Why limit ourselves to specimen-associated data?
  - Quality control
  - Online access
  - Other metrics missing (absence, abundance)
- Huge volumes of weed data is captured elsewhere
  - Environmental impact statements
  - Environmental impact reviews
  - Land clearing applications
  - Weed management plans
  - Aerial photography
  - Apps (DAFWA MyWeedWatch etc)
  - Citizen science engagement
  - Compliance weed spraying
  - Rangeland condition reports
  - Roadside vegetation surveys

Existing data repositories

- Digitised databases
  - ALA, AVH
  - NatureBase/FloraBase
  - Botanical consultants
  - Mining companies
- Document libraries (flora and vegetation reports)
  - WA Department of Mines and Petroleum (MINDEX)
  - Department of the Environment EPBC Public Notices
  - WA Department of Environmental Regulation (NVCPs)
  - WA Environmental Protection Authority (etc etc)



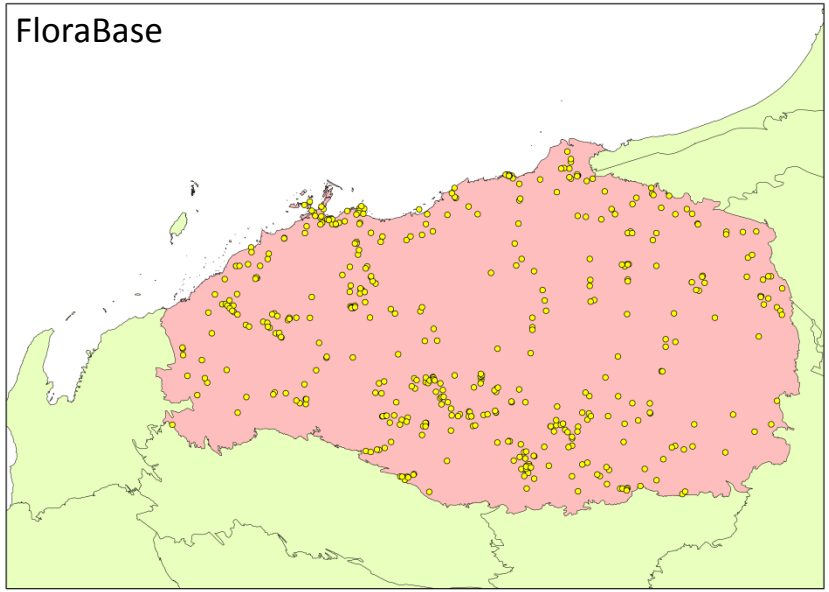
Case study – Pilbara weeds database

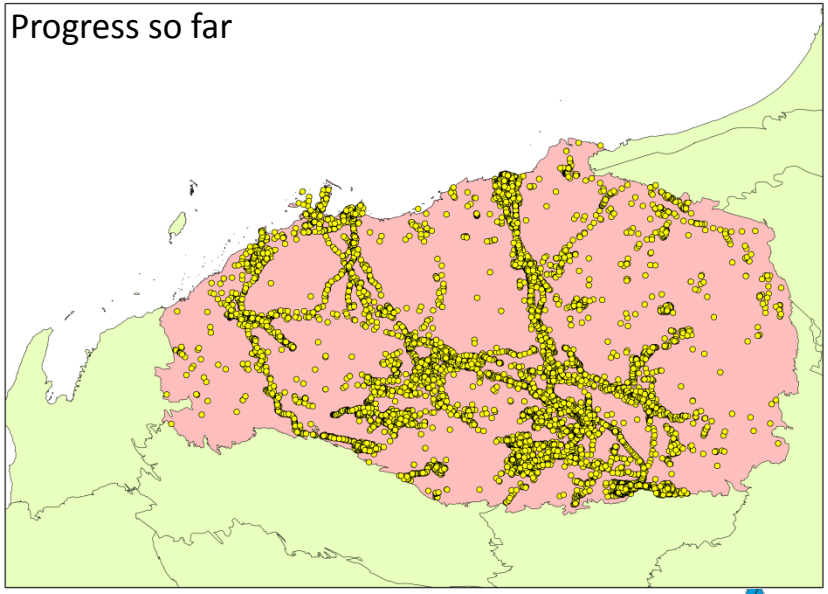
- Aggregate all available weeds data across the Pilbara
  - Mining activity => Pilbara flora well documented
  - Digitised & paper, online & offline sources

- Expanded & standardised field list
  - Detailed data source fields
  - Weed abundance & absence
  - Data quality estimates

Case study – Pilbara weeds database

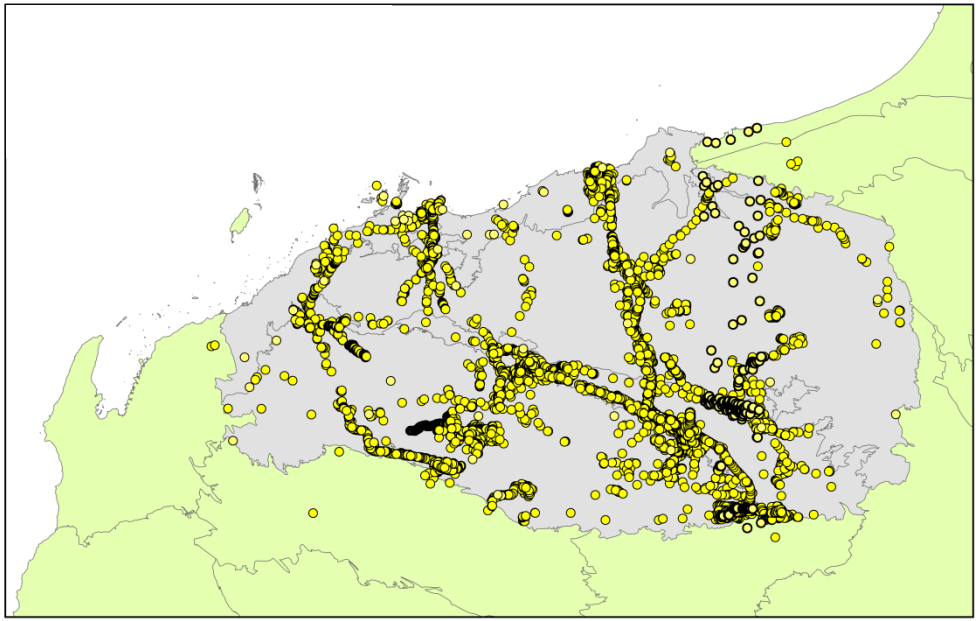
- FloraBase: 804 records from 114 species
- Progress so far: c. 35,000 records from 125* species





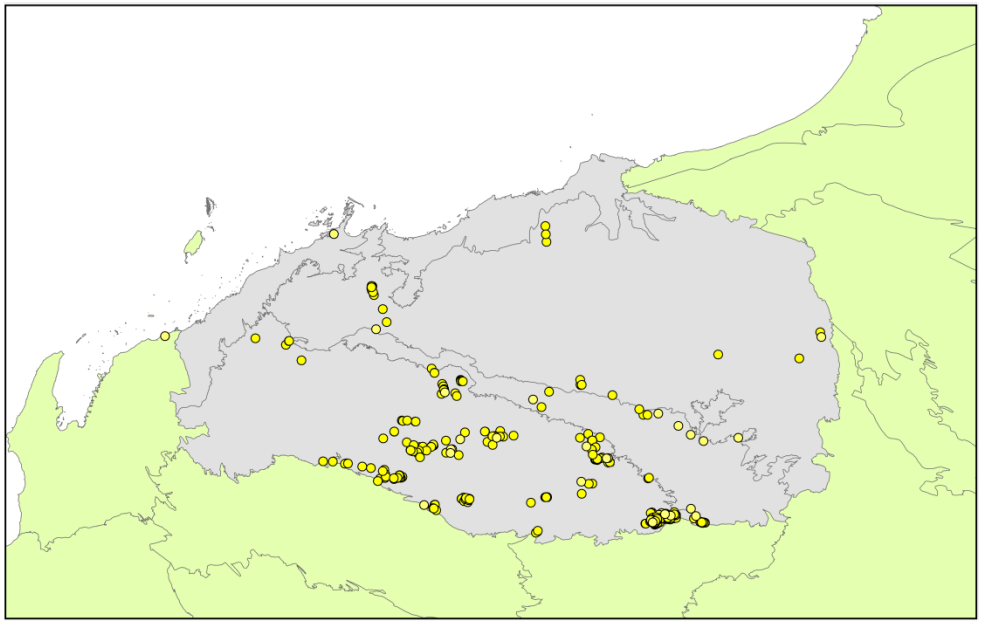
*Names as they appear in source documents, to be revised.

Cenchrus ciliaris (Buffel grass)



- Already known to be widespread in the Pilbara

Acetosa vesicaria (Ruby Dock)



- Not previously recognised as widespread in the Pilbara but a high risk (revegetation)
- Improved spatiotemporal coverage allows risk portals (transport links) to be identified
- Absence data can identify at risk areas

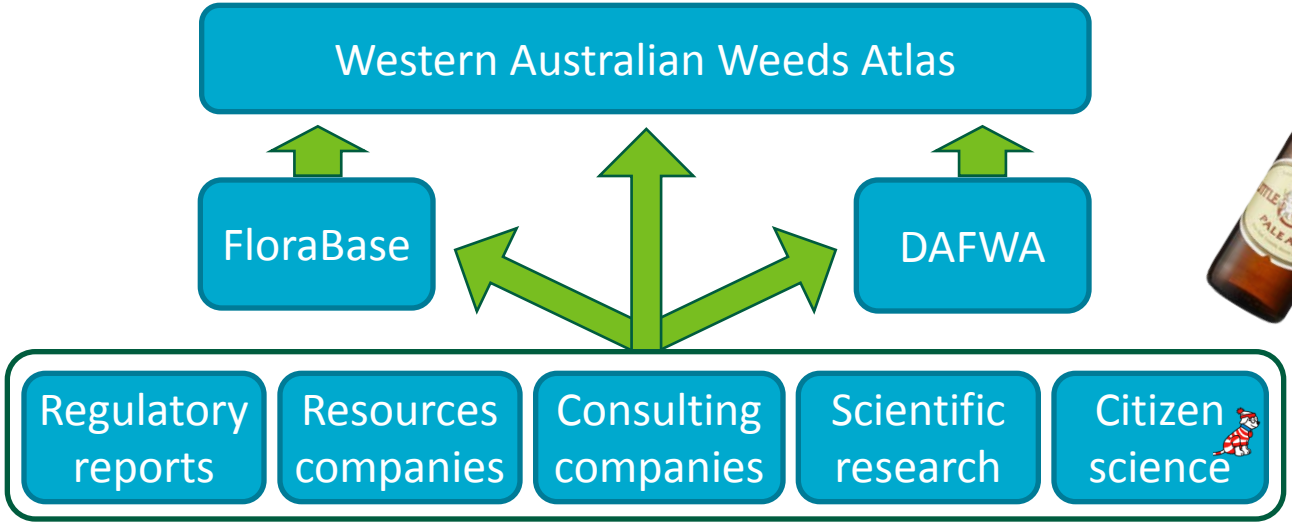
From data to management outcomes

- Manipulation
  - Quality control management & filtering

- Interrogation
  - Spatiotemporal change
  - Relationship to landscape features
  - Predictive modelling
  - Cross tenure applicability

PWD to the WAWA …to the AuWA?

- The future of aggregated weed data for WA
  - Mixed source data
  - Quality control measures
  - Cross-organisation consolidation
  - Freely accessible online



Interested in sharing your data?

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