Protecting Queensland's waterways

Gully mapping in Great Barrier Reef catchments

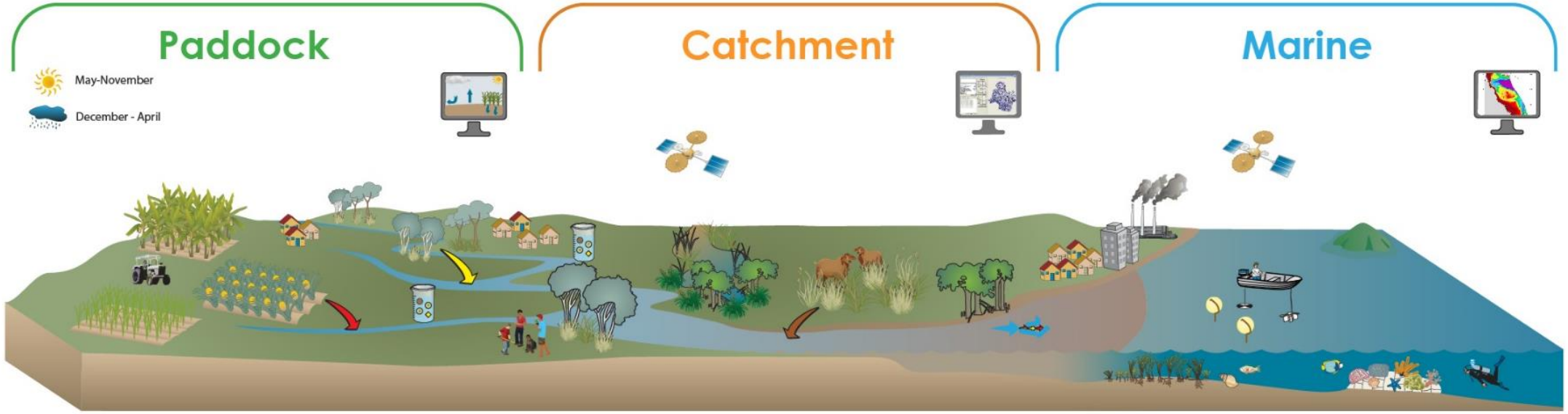
Improving water quality outcomes

Shawn Darr, Senior Spatial Information Officer
Department of Natural Resources, Mines and Energy

22nd International RIVER SYMPOSIUM

Queensland Government

Paddock to Reef program



Agriculture
- Paddock monitoring
- Paddock modelling

Catchment monitoring

Catchment modelling

Catchment indicators
- Riparian extent
- Wetland condition
- Wetland extent
- Ground cover

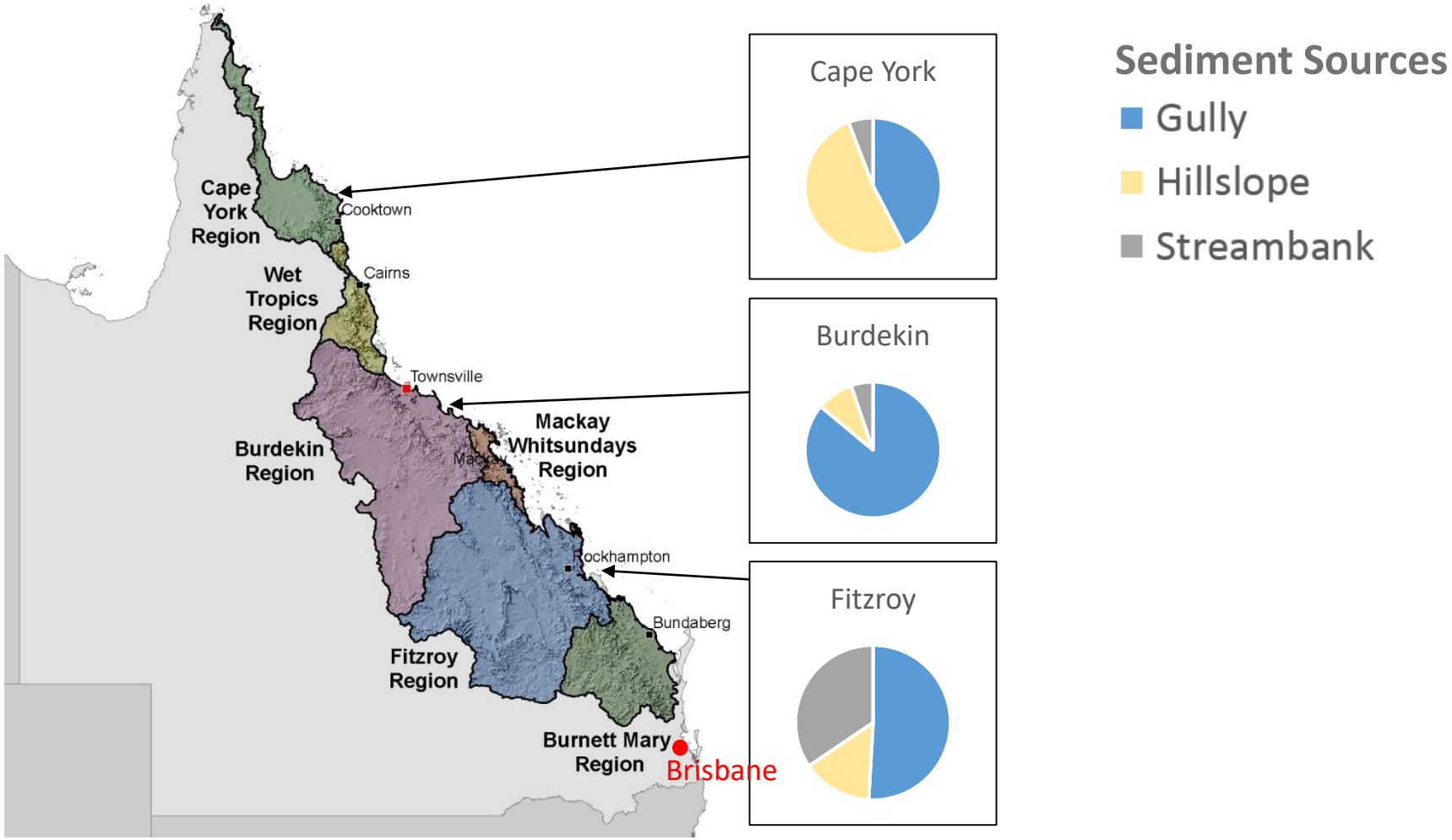
Seagrass monitoring

Water quality monitoring

Coral monitoring

eReefs marine modelling

Do we need to worry about gullies?



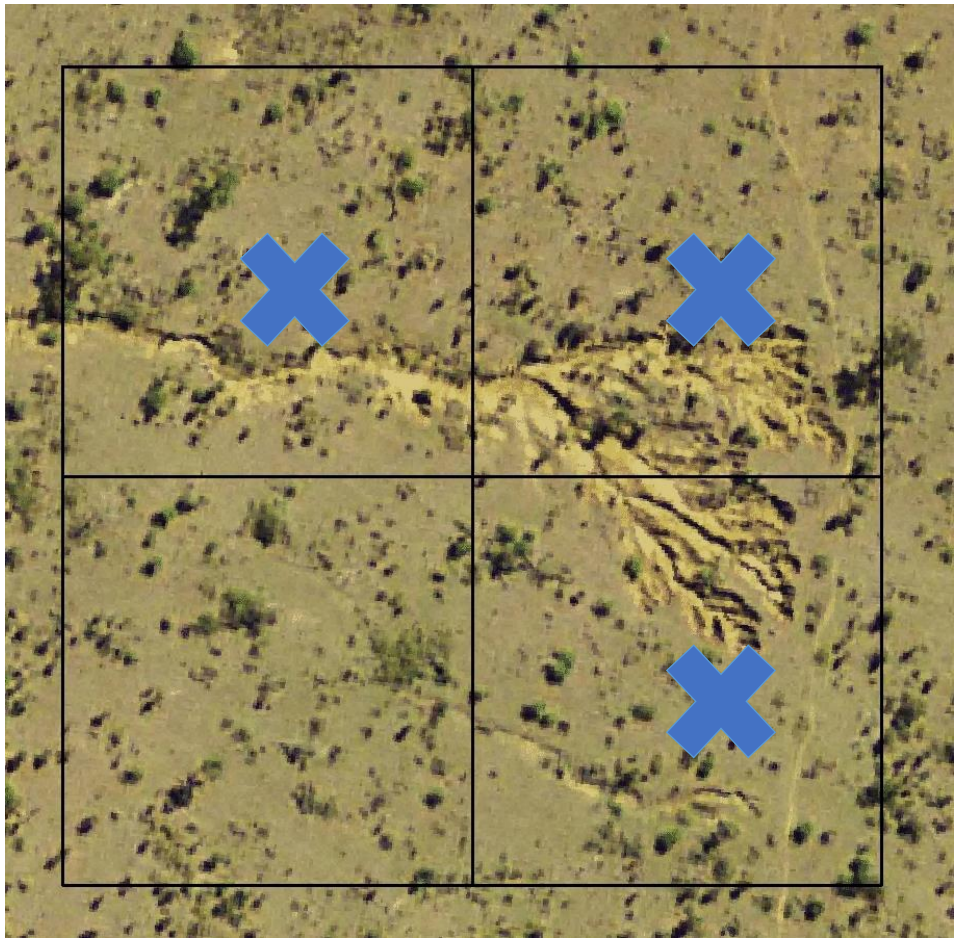
Uncertainty in gully model inputs

- Initial gully density datasets not adequate
- Key attributes
  - Location
  - Gully volume
  - Current activity rate
  - Age (initiation date)

Gully mapping project

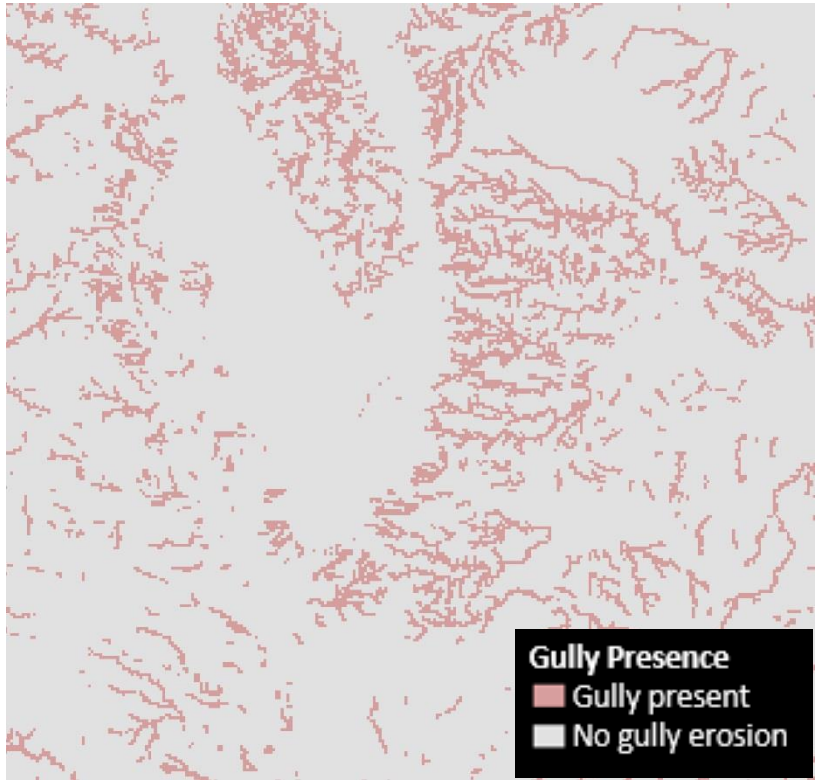
Grid based mapping approach

- Presence/absence mapping
- Rules
- Automated GIS tools
- Volunteer workforce

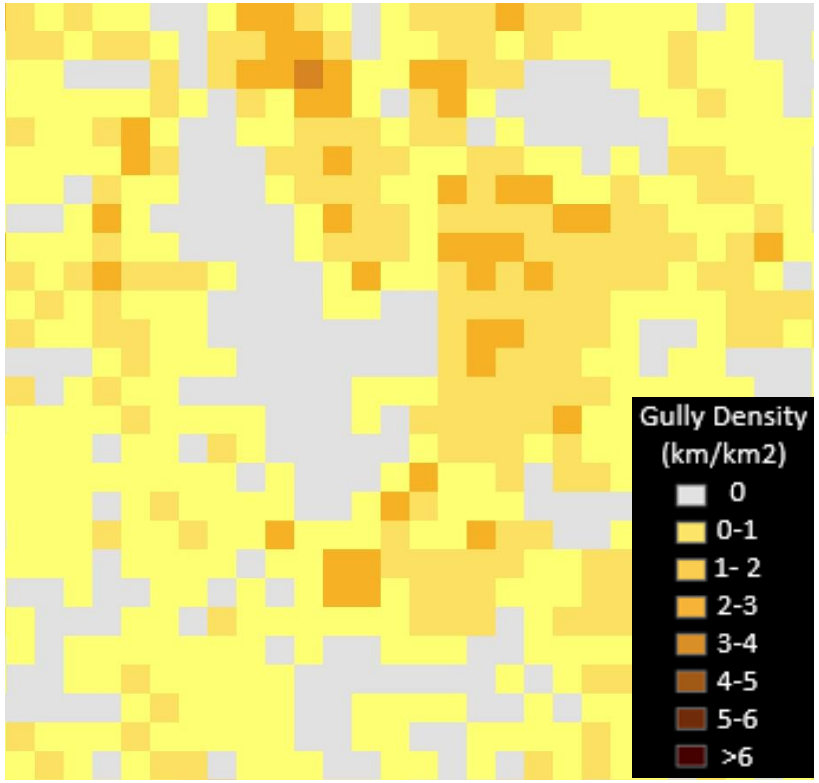


Gully geometry capture

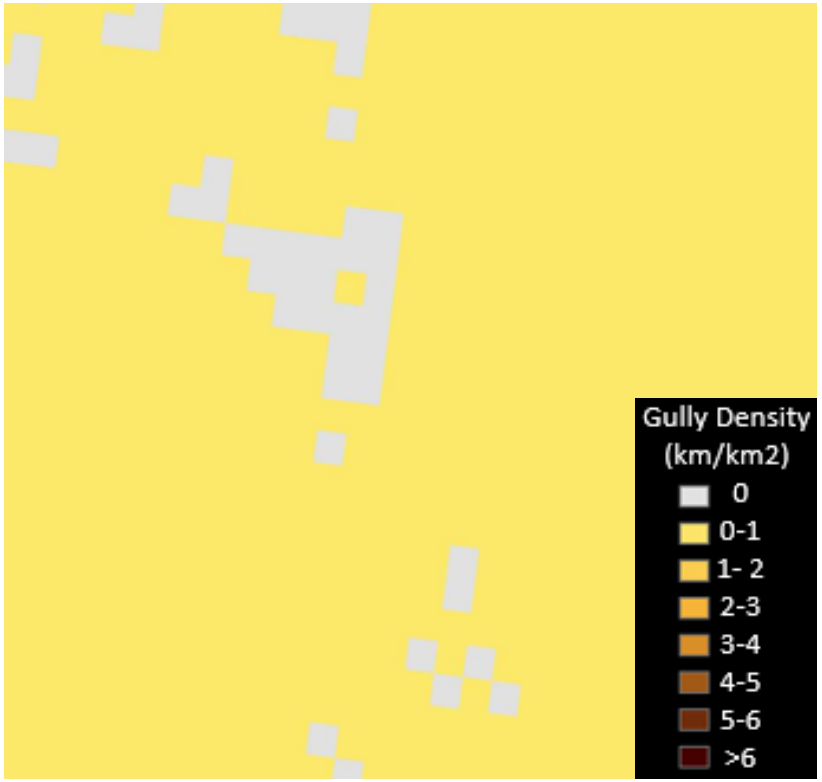
Grid Based Mapping - Outputs



100m Gully Presence/Absence

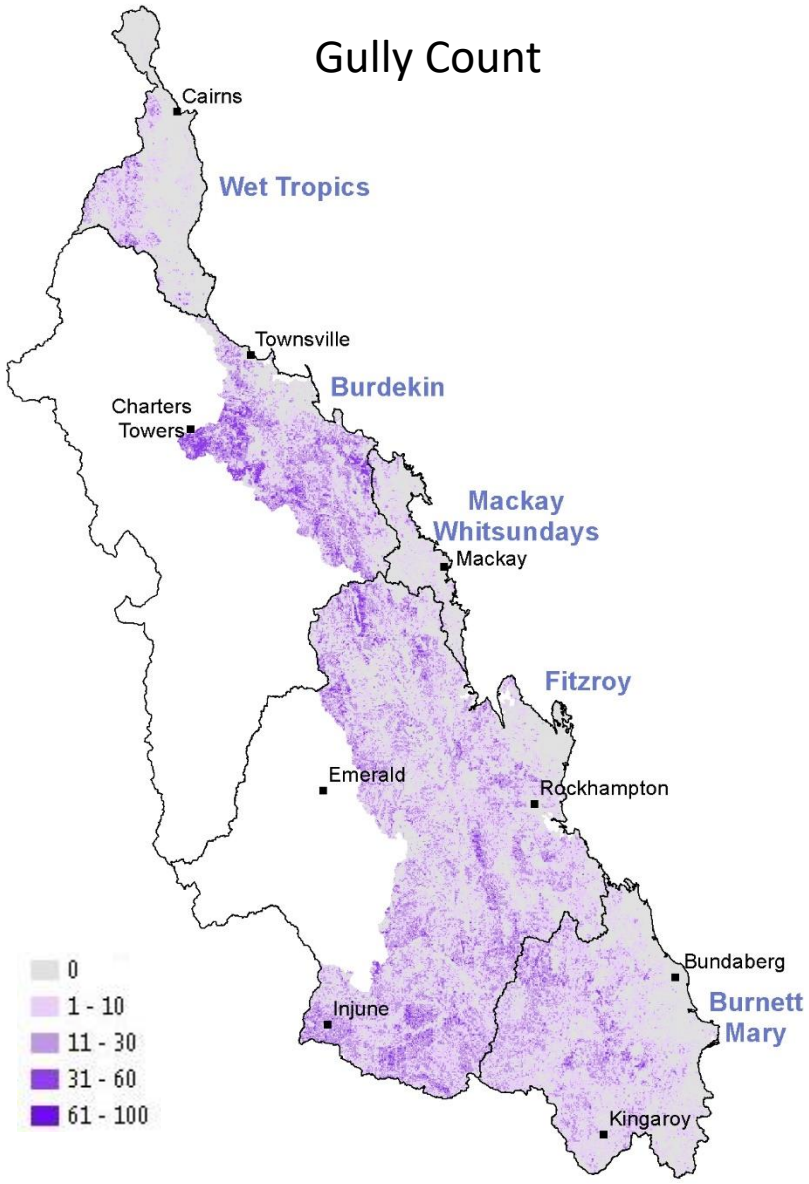


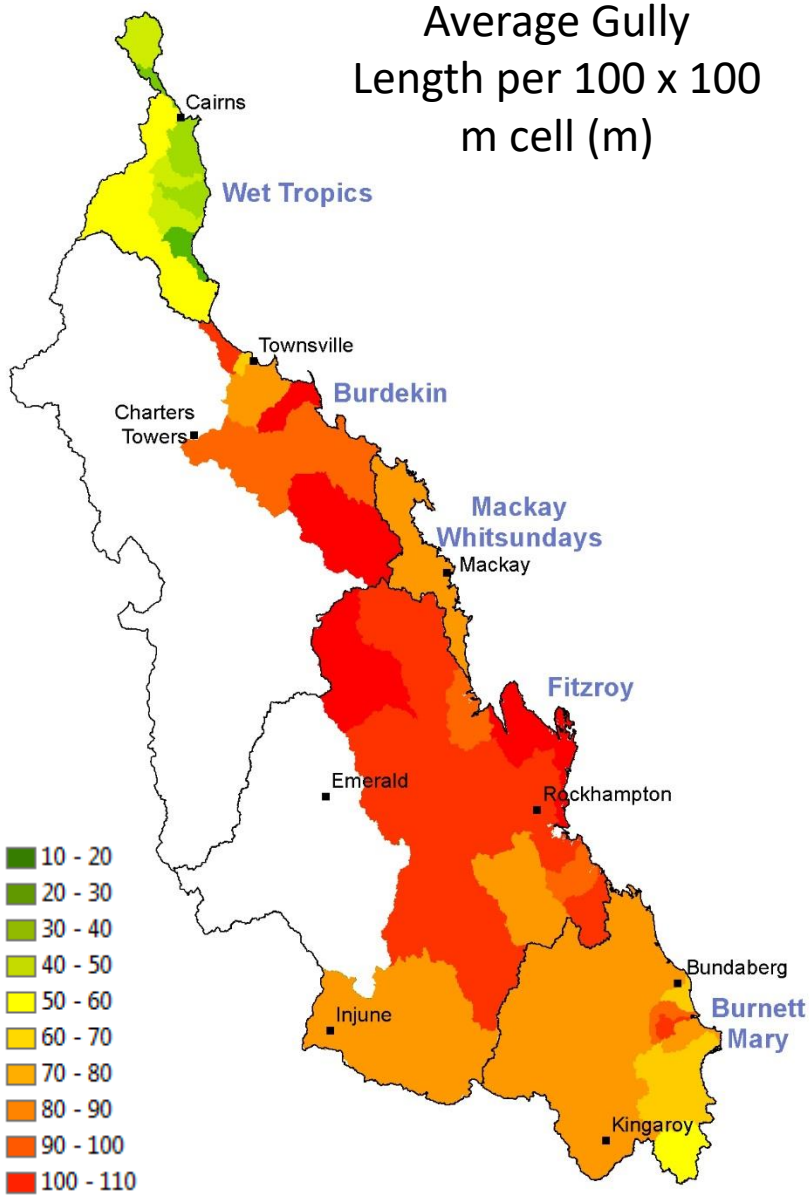
1km Gully Density

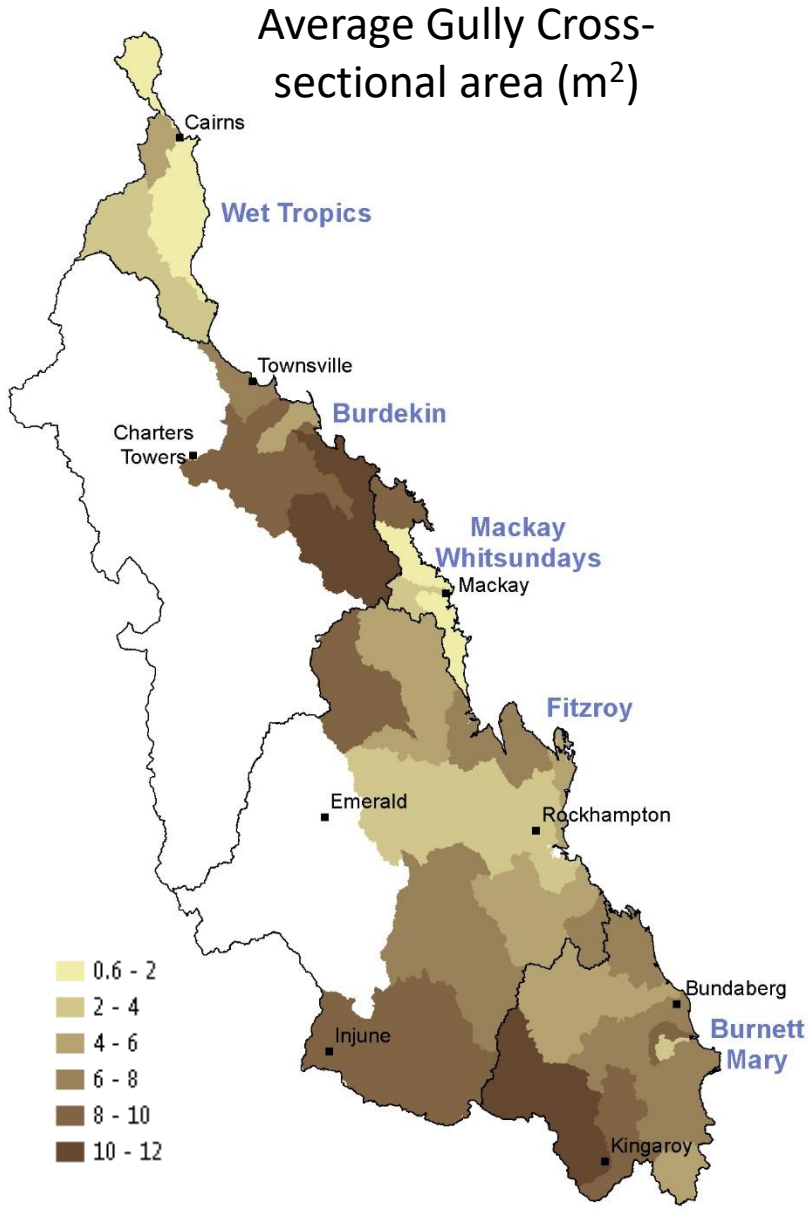


NLWRA Gully Density

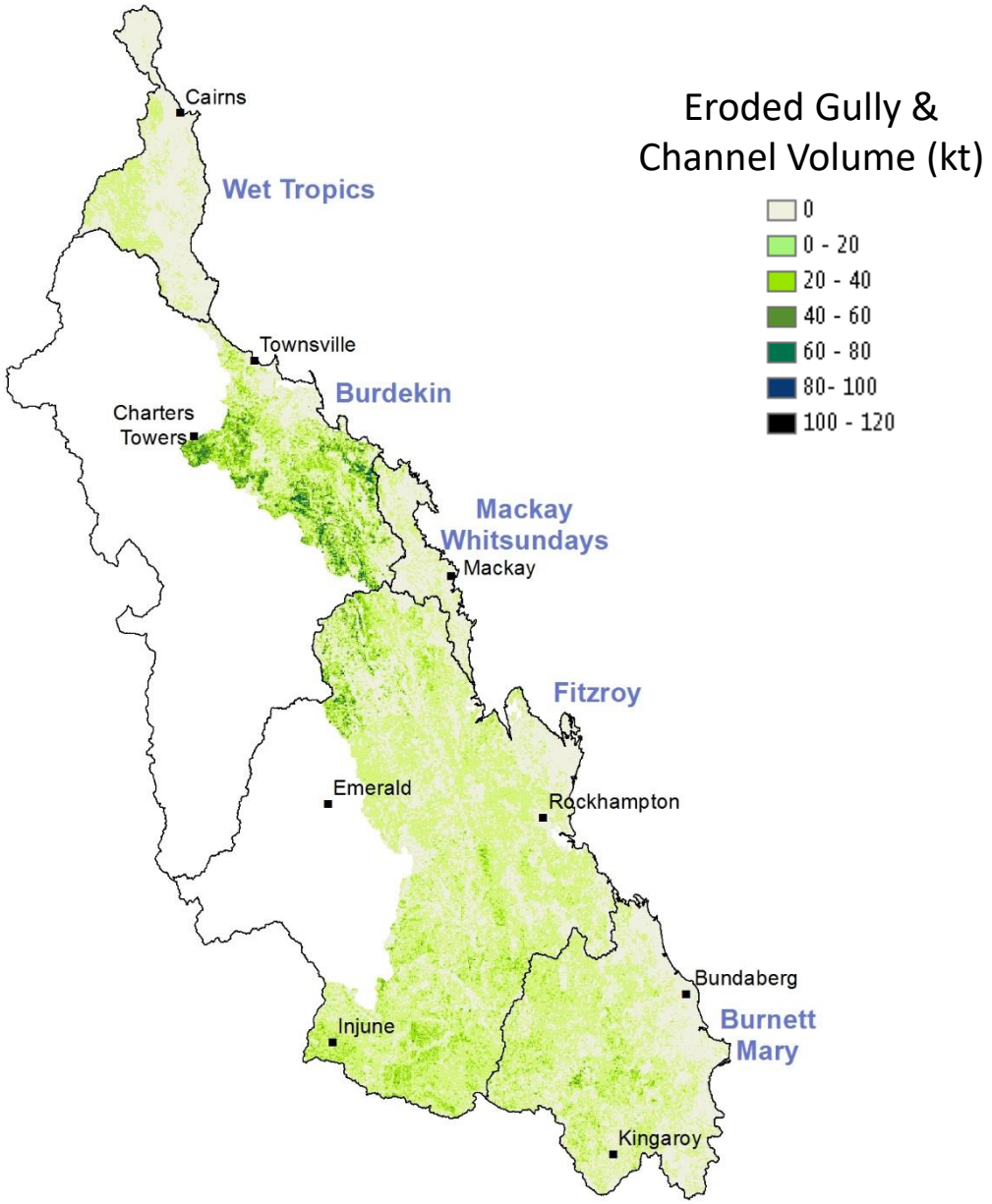
Progress & Results







COMBINED DATA - GULLY VOLUME



Remediation projects

Prioritising remediation

To improve targeted management effort:

- accurately map gullies
- differentiate gullies by size, type and sediment yields
- understand gully's hydrological connectivity to the Great Barrier Reef

Shawn Darr

Senior Spatial Information Officer
Department of Natural Resources Mines and Energy
shawn.darr@dnrme.qld.gov.au