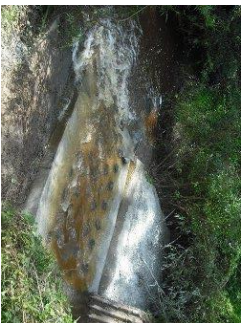


MANGAKOTUKUTUKU STREAM RESTORATION



Vision: A gully rich in native in biodiversity and a healthy stream from the headwaters to the Waikato River

Goals:

- Diverse and abundant stream life
- Low weed and pest numbers
- Improved habitat diversity
- More trees alongside streams
- Stable streambanks
- Less sediment in streams
- Clearer water
- No rubbish in streams
- Sensitive upstream management
- Good access for migrating fish
- Care around vulnerable habitats

History:

- Streamcare group established in 2006 by local residents/concerned scientists
- Incorporated Society – c. 90 members

Catchment pressures:

- Farming, mainly in Rukuhia area
- Impervious surfaces = modified flow
- Fish passage - culverts
- Urban expansion (Peacockes catchment)

Restoration initiatives:

- Riparian planting for bank stability, shade, biodiversity
- Fish passage remediation/maintenance
- Threatened species enhancement
- Pest management/exclusion (low key)
- Habitat enhancement – off-channel, wood
- Restoration/riparian enhancement plans
- Landowner and council partnerships
- Advocacy/submissions on urban issues
- Education – schools, City council



MANGAKOTUKU STREAM RESTORATION

Technical details

Catchment Characteristics:

- 2295 ha - 3 main sub-catchments
- Sub-catchment impervious area 6% to 36% - 15% at Peacocks Rd
- 70% of land area rural – 13% in urban growth cell
- 34 km of mapped stream + many unmapped streamlets and seeps
- >15 stormwater outlets...increasing

Biodiversity Values:

- 10 native fish species – 4 threatened (giant kokopu, longfin eel, torrentfish, inanga)
- 3 introduced fish – 2 considered pests (Gambusia, koi carp – restricted to below Peacocks Rd culvert)
- 71 stream macroinvertebrate taxa; 18 sensitive “EPT” taxa
- MCI generally <80 (“poor” water quality), but Peacocks Branch averages 108 with 41% EPT abundance
- Supports iconic aquatic invertebrates (crayfish, giant bush dragonfly and the threatened snail *Glyptophysa variabilis*)
- Seepages harbour many insect species (e.g., 19 caddisfly and mayfly species), many of which are typical of native forest conditions – disconnected from stormwater
- Significant long-tail bat activity in Sandford Park – likely roosting habitat

Riparian Restoration:

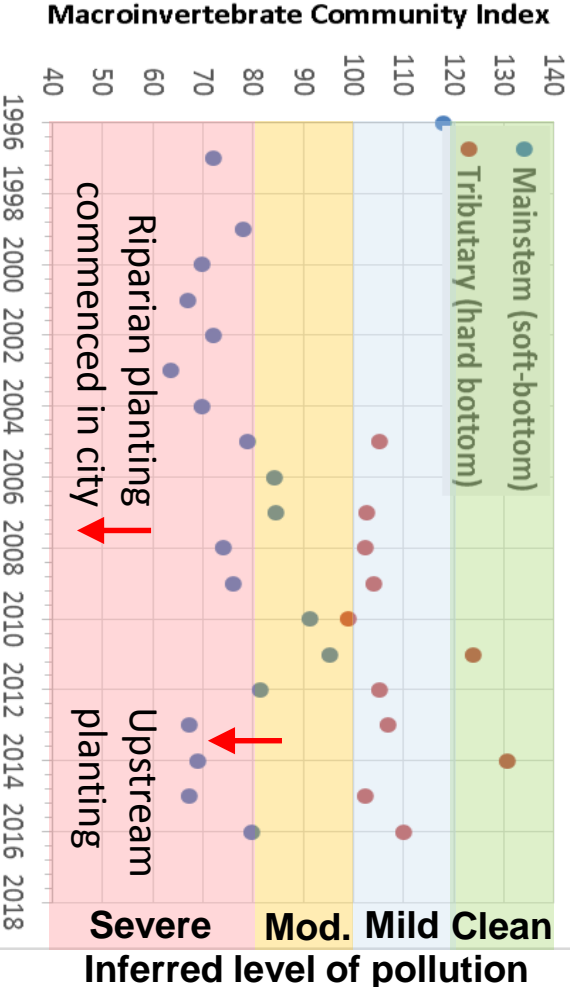
- Planted >46,000 plants from 2006-17
- Mostly ecosourced and species that would have naturally occurred in gully
- 2020 goal is 100,000 plants

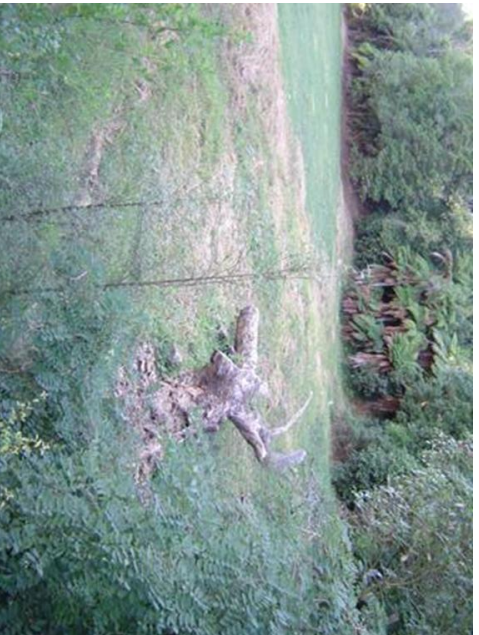
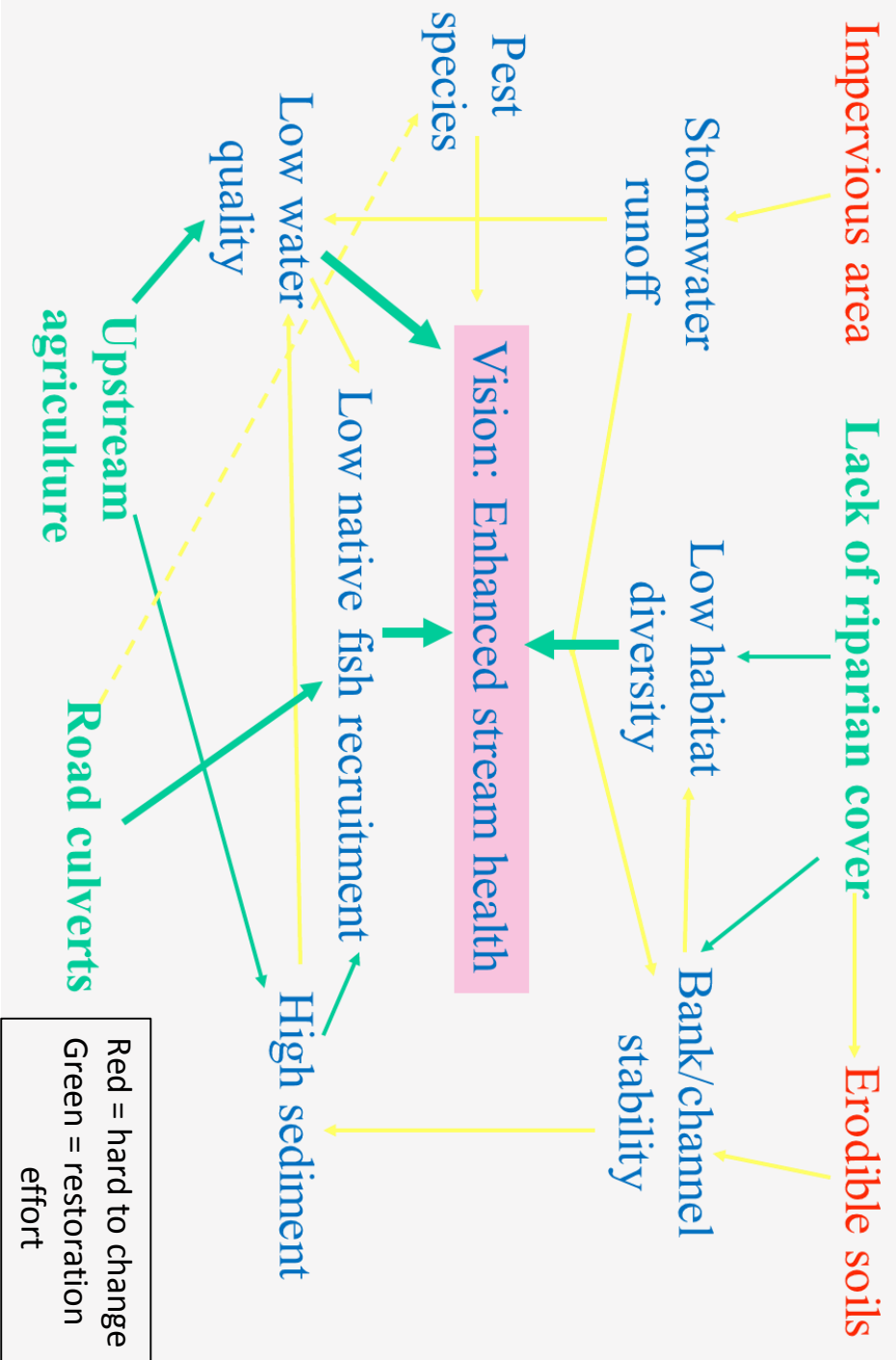
Wetland Restoration:

- Aimed to capture springwater previously routed down gutter to create wetland
- Bunded clay liner with topsoil – 400 m²
- Outlet structure enables water level to be managed and prevents eel invasion
- Planted *Baumea articulata* and *B. rubiginosa*; also the rare native milfoil *Myriophyllum robustum*
- Introduced 32 rare black mudfish *Neochanna diversus* sourced from nearby Lake Koromatua
- Monitoring so far suggests no breeding

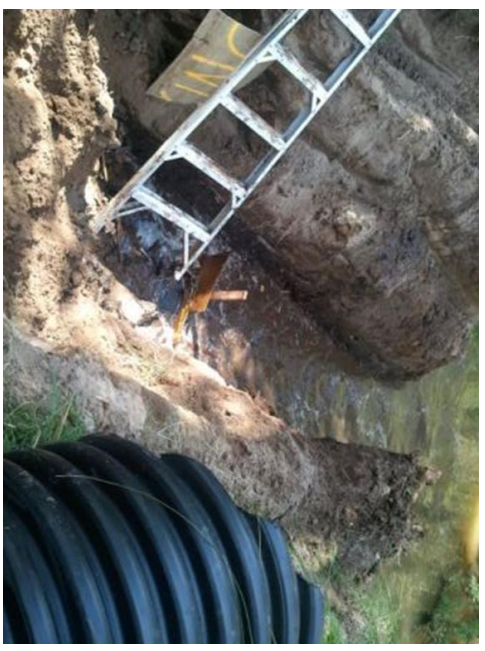
Fish Habitat Restoration:

- Fish passes – Peacocks, Waterford Rds
- 200 m of channel in Sandford Park as demonstration site – wood structures and off-channel habitat
- 3 bank-keyed wood weir structures and 2 boulder-anchored log overhangs
- 3 tiers of U-shaped alkathene pipe to provide eel refuges
- One inverted culvert connected to stream for giant kokopu refuge





Mudfish wetland



Kokopu condos



Tuna townhouses