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Biodiversity values of Weeli Wolli Spring: A priority ecological community

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Background

Weeli Wolli Creek in the central Hamersley Range supports a permanent series of pools which are fed by Weeli Wolli Spring. This arid zone wetland supports a unique community of plants and animals some of which are endemic to the Spring. Grazing by livestock, inappropriate fire regimes and alteration to surface water flows and groundwater levels as a result of mining pose a significant threat to this unique Pilbara community. Consequently the community has been listed as a Priority 1 Ecological Community.

The Spring, which has considerable spiritual and cultural significance to traditional owners of the Hamersley Range, is located at the base of a large banded ironstone ridge that intersects the Creek providing an impermeable barrier to the subsurface downstream flow of water. The subsequent surface expression of water at the spring varies from a trickle to a significant flow which is expressed as pools and billabongs on the surface for up to 10 km.

The vegetation of the spring and surrounding creek channel is typical of most Pilbara drainage features that support permanent water.

Ironstone barrier at Weeli Wolli Spring

It is dominated by a fringing forest or tall woodland of Silver paperbark (*Melaleuca argentea*) and River Red gum (*Eucalyptus camaldulensis*) over trees of Coolibah (*E. victrix*) and a dense shrub layer dominated by an assortment of wattles, in particular Pilbara Jam (*Acacia citrinoviridis*). The presence of permanent water and very moist sediment also provides suitable habitat for many sedges and herbs. The area is a haven for birds and other fauna including many bats and also supports a rich community of surface and subsurface aquatic invertebrates.

Findings

The biodiversity values of Weeli Wolli Spring are high. Among the 120+ native plant species known from Weeli Wolli, apart from the majestic Silver cajuputs there are several species of conservation interest including a trigger plant named after the Spring – *Stylidium weeliwolli*. Botanical values also include a hybrid zone between two native cotton (*Gossypium*) species which has attracted significant commercial interest from multinational companies in the quest for a biological control agent of the pink bollworm, a serious predator of commercial cotton throughout the world.

The diversity of habitats in close proximity to the Spring also provides a haven for birds with over 60 species recorded along the creek. The Spring is recognised as a focal point for Pilbara birds and is promoted by local and State tourism agencies. Similarly the diversity of habitat types and rough landscapes provide many opportunities for bats, with the Spring being the only known Pilbara and most northern locality for the Chocolate Bat (*Chalinolobus morio*). The Ghost bat (*Macroderma gigas*) a threatened species, has also been recorded foraging above pools downstream of the Spring.

Water Mite - *Austraturus* sp. P1

The most significant biological values of the spring and its creek system are associated with the aquatic invertebrates that inhabit the Spring, pools and the underground water body. Three species of water mite (*Wandesia* sp. P1 (nr *glareosa*), *Austraturus* P1, *Guineaxonopsis* sp. P1 (PSW)) are only known from Weeli Wolli Creek and one other locality in the Pilbara. Similarly two underground aquatic invertebrates, a water mite (*Arrenurus* sp. nov. 1 (PSS), and a oligochaete (*Ainudrilus* sp. WA26 (PSS)), are only know from Weeli Wolli while three other crustaceans (*Gomphodella* sp. 4 (PSS), *Maarka* n. sp. '*wolli*' ms, *Meridiescandona* sp. 3' (PSS)) are only known from Weeli Wolli and one other locality in the Pilbara.

Management Implications

DEC is currently working with industry and traditional owners to manage impacts on Weeli Wolli Creek and the Spring from water abstraction and discharge associated with the Hope Downs mine. The primary objectives of these efforts are to protect cultural values and maintain the biological assets of the area. To this end the State Government will establish a reserve at Weeli Wolli in 2015 to protect and manage the values of the spring and several kilometres of the downstream creek.

For additional information on the flora and fauna of the Pilbara please visit the Pilbara Biological Survey website at http://www.dec.wa.gov.au/science-and-research.

Silver Cajuput (*Melaleuca argentea*) in Weeli Wolli Creek

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