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RECOMMENDATION

AUSTROCORDULIA LEONARDI - SYDNEY HAWK DRAGONFLY

The Fisheries Scientific Committee, established under Part 7A of the *Fisheries Management Act 1994* (the Act), has made a final recommendation to list *Austrocordulia leonardi*, Sydney Hawk Dragonfly as an ENDANGERED SPECIES in Schedule 4 of the Act.

The listing of Endangered Species is provided for by Part 7A, Division 2 of the Act.

The Fisheries Scientific Committee has found that:

1. *Austrocordulia leonardi* Theischinger, 1973, the Sydney Hawk (Family Austrocorduliidae), is a black and yellow dragonfly, adult length 60-70 mm, with clear wings. The species is valid. The aquatic larvae ("mud-eyes"), body length 22-24 mm, are distinguished from co-occurring *Austrocordulia refracta* Tillyard, 1910, a more common species in the Sydney region, by a uniformly arched abdominal terga and distinctive abdominal colour pattern. The type locality is a deep pool above the weir at Heathcote in the Woronora River.
2. The known distribution of *Austrocordulia leonardi* is extremely limited, being found in only three locations in a small area south of Sydney, from Audley to Picton. This species is known from the following drainages: Hawkesbury-Nepean, Georges River, Port Hacking, and possibly Karuah. *Austrocordulia leonardi* was discovered in 1968 from Woronora River and Kangaroo Creek, south of Sydney (Theischinger 1973) and later recorded from the Nepean River, Maldon Bridge near Wilton (Theischinger 1997; Hawking & Theischinger 1999). Extensive sampling for dragonflies has failed to discover specimens of this species in other locations.
3. *Austrocordulia leonardi* is a rare species. While many exuviae (the moulted shell of the larvae from which the adults emerge) have been found, only 11 adult specimens are known. Most of the life cycle of this species is spent as an aquatic larva, while adults are present for only a few weeks. This species appears to have specific habitat requirements, including slow-flowing water in rocky rivers with steep sides that provide shady resting areas. All specimens collected came from deep riverine pools with cooler water (along the Woronora River, Kangaroo Creek and Nepean River). *Austrocordulia leonardi* is found under rocks, where it may coexist with the southern form of *Austrocordulia refracta* (Theischinger, 1999; Hawking & Theischinger, 1999).
4. Decline in *Austrocordulia leonardi* has occurred as neither exuviae or adults have been collected in recent times. Intensive surveys by Theischinger and colleagues (Theischinger, pers. comm.) over the last two years have failed to detect the presence of any of the life stages of *Austrocordulia leonardi* along the Woronora River and Kangaroo Creek. The species has not been collected from the type locality since the

removal of the weir in the Woronora River at Heathcote (Hawking & Theischinger, 2004).

5. Because of its limited distribution and rarity, threats to the continued survival of *Austrocordulia leonardi* are difficult to assess. Natural deep pools, which this species favours as a primary habitat, have disappeared due to the modification of environmental flows and increased siltation. Modification of the waterways in the Sydney region, in conjunction with ongoing decline in environmental flows owing to drought, may cause the species to become extinct.
6. The conservation status of *Austrocordulia leonardi* records concern for this species. It has been placed on the IUCN Red list as 'critically endangered' (CR) owing to its rareness and restricted distribution (Moore, 1997; Hawking & Theischinger, 2004).
7. In light of the above, the Fisheries Scientific Committee has determined that *Austrocordulia leonardi* is likely to become extinct in NSW unless the circumstances and factors threatening its survival or evolutionary development cease to operate. Therefore, *Austrocordulia leonardi* is eligible for listing as an ENDANGERED SPECIES in Schedule 4 of the *Fisheries Management Act 1994*, and accordingly that the Schedule be amended by inclusion of that species.

Dr Patricia Dixon

Chair
Fisheries Scientific Committee