

# Sydney Hawk Dragonfly – *Austrocordulia leonardi*

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Threatened Species Unit, Port Stephens Fisheries Institute



Figure 1: A Sydney Hawk Dragonfly (Photo: L. Mueller).

## Introduction

The Sydney Hawk Dragonfly is an extremely rare species of dragonfly. Until recently, the species was only known from three locations in a small area south of Sydney, from Audley to Picton.

It was first discovered in 1968 in Woronora River (near Heathcote), at a river dam used as a bathing site. In 1986, the bathing site was eliminated by the removal of the man-made weir that was providing deep, cool water for swimming.

After its removal, the Sydney Hawk Dragonfly was no longer observed at this site, and it became apparent that the deep, cool water was also crucial for the species.

Following its disappearance from Woronora River, the species also disappeared from the Nepean River site, leaving the site near Audley as the only locality where there were regular observations of larvae. For many years, extensive dragonfly sampling failed to discover specimens of this species in other locations, suggesting that it has a highly restricted distribution.

However recent surveys recorded Sydney Hawk Dragonfly north of Sydney and north of the Hunter Valley, extending its known range almost 200 km further north than previously recorded. Despite the range extension for the species, Sydney Hawk Dragonfly is still of high conservation concern, given the fragmented nature of the records and ongoing development of urban areas.

The Sydney Hawk Dragonfly is listed as an **endangered species** in NSW. There are heavy penalties for harming, possessing, buying or selling them, or for harming their habitat (see 'Legal implications').

## Description

The Sydney Hawk Dragonfly is a black and yellow dragonfly with clear wings spanning 60-70mm, and with an abdomen length of 50-55mm. The aquatic larvae have a body length of 22-24mm and are distinguished from the similar Eastern Hawk Dragonfly, *Austrocordulia refracta*, by a uniformly arched abdomen and distinctive abdominal colour pattern.

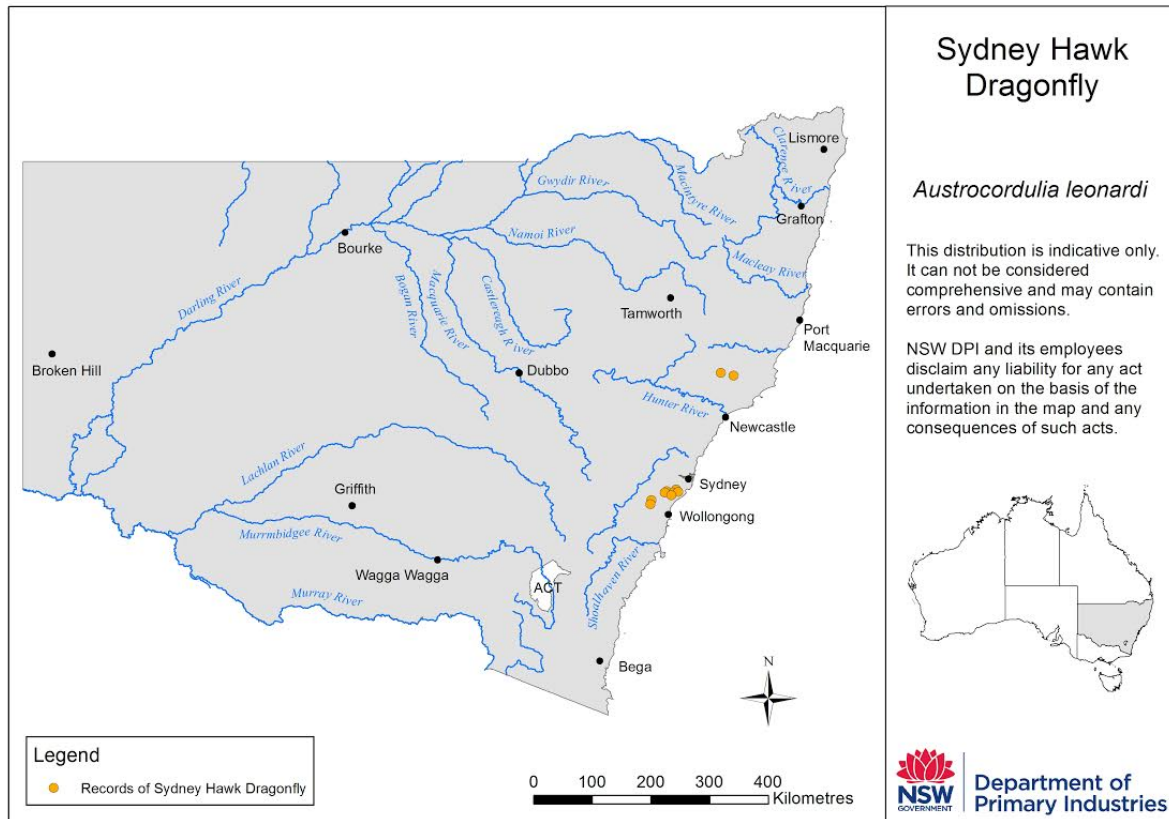


Figure 2: Distribution of Sydney Hawk Dragonfly

## Habitat and Ecology

- The Sydney Hawk Dragonfly spends most of its life underwater as an aquatic larva, before metamorphosing and emerging from the water as an adult. Adults are thought to only live for several weeks or a few months.
- All dragonflies are predatory. The larvae stalk or ambush aquatic prey while the adults capture prey while flying.
- The Sydney Hawk Dragonfly has specific habitat requirements, and has only ever been collected from deep river pools with cooler water and permanent flow. It is strictly a diurnal dragonfly that requires open, sunlit space.
- Larvae are found under rocks where they coexist with the Eastern Hawk Dragonfly.
- Water pollution and sedimentation due to land clearing, waste disposal and stormwater runoff from urban, industrial and agricultural development in the catchment.
- Increased controlled burning for new houses that adjoin bushland areas threaten Sydney Hawk Dragonfly habitat.
- Chance events such as natural disasters (drought) may eliminate remaining local populations. Local extinctions could greatly affect the survival of the species as a whole due to their rarity.

## Conservation and recovery actions

### Why is the Sydney Hawk Dragonfly threatened?

- River regulation and alteration of flows have caused the disappearance of natural deep pools.
- Habitat loss and degradation resulting from the removal of riparian (river bank) vegetation, drainage works and sedimentation.
- Negotiate with relevant authorities to encourage the identification, assessment and modification of natural resource management plans and policies to minimise impacts on Sydney Hawk Dragonfly habitats and water quality.
- Undertake work to identify, restore and protect known and potential Sydney Hawk Dragonfly habitats and address key threats such as habitat degradation and water quality declines from expanding development.

- Undertake priority rehabilitation, restoration and enhancement work at key sites known to support Sydney Hawk Dragonfly.
- Protect the few remaining sites with the potential to support the species, and address key threats such as habitat degradation and water quality decline.
- Conduct further research into the species' biology, ecology and distribution.
- Report any sightings of the species via the NSW DPI online form:  
<http://www.dpi.nsw.gov.au/fisheries/species-protection/report-it>
- A full list of strategies that have been adopted for promoting the recovery of the Sydney Hawk Dragonfly is set out in the NSW DPI Priorities Action Statement:  
<http://www.dpi.nsw.gov.au/fisheries/species-protection/priorities-action-statement2>



Figure 3: Sydney Hawk Dragonfly habitat (Photo: G. Theischinger)

## Legal implications

It is illegal to catch and keep, buy, sell, possess or harm Sydney Hawk Dragonfly (or any other threatened species in NSW) without a specific permit, licence or other appropriate approval, and significant penalties apply. For endangered species, these penalties can include fines of up to \$220,000 and up to 2 years in prison.

There can also be significant penalties for causing damage to the habitat of a threatened species without approval, through actions such as dredging river beds, removing large woody debris and constructing barriers that block the free passage of fish.

Clearing that constitutes a routine agricultural management activity, and certain routine farming practice activities (other than clearing) are permitted, provided the activities are to the minimum extent reasonably necessary and all other relevant statutory approvals or authorities have been obtained.

The impacts of developments or activities that require consent or approval in accordance with the *Environmental Planning and Assessment Act 1979* must be assessed and considered by consent or determining authorities. Where such actions are likely to result in significant impact on a threatened species or its habitat, a detailed species impact statement must be prepared.

Strategies to be adopted for promoting the recovery of Sydney Hawk Dragonfly are set out in the NSW DPI Priorities Action Statement.



Figure 4: An adult Sydney Hawk Dragonfly (Photo: L. Mueller)

## Bibliography and further reading

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Figure 5: A Sydney Hawk Dragonfly exuvia (Photo: G. Theischinger)

### For further information

See the NSW DPI website: [www.dpi.nsw.gov.au](http://www.dpi.nsw.gov.au)

Contact the NSW DPI Threatened Species Unit:  
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