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- Fauna surveys
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Possible impact of artificial night lighting on the Red-crowned Toadlet

The Red-crowned Toadlet is listed as threatened (category Vulnerable) on the NSW *Threatened Species Conservation Act*. It is a small frog endemic to the Sydney Basin Sandstone, with populations in the Lane Cove Valley.

There is no specific scientific research on the possible impact of artificial night lighting on the Red-crowned Toadlet. However, under the precautionary principle and on the basis of my literature research, the following effects might apply.

Sudden artificial lighting (e.g. switching on powerful floodlights) is known to temporarily blind frogs, with a long recovery time (minutes to hours) to restore their night vision. Once their eyes are adjusted, they may also be attracted to lights, i.e. be disoriented or their movement patterns disrupted.

Artificial lighting can also interfere with the breeding behaviour of frogs, e.g. by inhibiting calling behaviour or travel to breeding sites, or interfere with mate selection (owing to the higher predation risk at high light levels), and can inhibit foraging behaviour.

Artificial lighting is known to encourage nocturnal foraging by certain diurnal reptiles, which may lead to competition with frogs for insect prey and foraging spaces.

The above effects combined could conceivably affect the ability of Red-crowned Toadlets to persist in well-lit areas. Therefore, a proposal to install strong night lighting should include an assessment of Red-crowned Toadlet occurrence in the adjoining conservation reserve.

A handwritten signature in black ink, appearing to read 'S. Debus'.

Dr Stephen Debus