

# NSW Threatened Species Scientific Committee

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## Conservation Assessment of *Lampropholis elongata*

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NSW Threatened Species Scientific Committee

### ***Lampropholis elongata* Greer 1997 (Scincidae)**

Distribution: Endemic to NSW

Current EPBC Act Status: Not listed

Current NSW BC Act Status: Not listed

Proposed listing on NSW BC Act: Not listed (as it is data deficient)

### **Conservation Advice: *Lampropholis elongata***

#### **Summary of Conservation Assessment**

*Lampropholis elongata* was found to be ineligible for listing as it is Data Deficient under all Criteria. Although records for this species indicate a restricted geographic distribution (EOO is 37 km<sup>2</sup> and AOO is 32km<sup>2</sup>), very little survey work has been undertaken to confirm this, and the distribution may be more widespread than currently known. In addition, there is no information available on threats to the population or habitat of this species, nor data available on population size or trends.

A recent IUCN assessment found *Lampropholis elongata* to be Data Deficient as “there is insufficient information about the extent of the species' distribution, population size, ecological needs, and threats to assess the species in another category” (Shea *et al.* 2018).

#### **Description and Taxonomy**

*Lampropholis elongata* is described by Cogger (2014) as: “Brown above, usually with dark-streaked individual scales forming a series of fine, dark longitudinal lines along the body. A dark brown to blackish upper lateral zone from the side of the neck to the base of the tail. This zone is sometimes narrowly bordered above with pale brown dorso-lateral stripe from above the eye to the tail. Lower flanks pale grey or brown dotted and flecked with dark brown. Whitish or grey below, liberally flecked with dark brown especially on the throat and the base of the tail. 20-22 mid-body scale rows, the scales usually smooth but sometimes with faint striations or even faintly tricarinate. Suture between the rostral and frontonasal about as wide as the frontal. Three supraoculars, the first two contacting the frontal. Supraciliaries 5-6, usually five. Frontoparietals fused to form a single shield. Interparietal distinct. Transparent disc of lower eyelid moderate, much smaller than the eye. Subdigital lamellae smooth, 13-17 under the fourth toe. 50 mm (snout-vent), the tail about 130% of snout-vent length. Adpressed limbs not meeting or overlapping.”

Greer (1997) states that “*Lampropholis elongata* differs from all other members of the genus *Lampropholis* in each of the following two characters: three supraoculars, the first two in contact with frontal, and a phalangeal formula 2.3.4.4.3/2.3.4.4.3 instead of 2.3.4.5.3/2.3.4.5.”

Common Name: Elongate Skink

#### **Distribution and Abundance**

*Lampropholis elongata* is endemic to New South Wales (NSW), where it is known to occur in a restricted area south of Walcha, mid-northern NSW on the Great Diving Range (Cogger 2014). The species has been found at two high altitude localities around 14 km apart, near ‘The Flags’ trig point (private property) and various locations in the vicinity of ‘Grundy Fire Tower’ (on connecting sections of Riamukka State Forest, Ngulin Nature Reserve and adjacent private farmland (Greer 1997).

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Minimal survey effort has been undertaken at the known locations of this species. A targeted survey (over a couple of days) was conducted at the Grundy Fire Tower location in the 1990s (G. Shea *in litt.* May 2018; R. Sadlier *in litt.* May 2018) and 13 specimens were collected. Several opportunistic collections have also been made around this site. Limited attempts have been made to survey 'The Flags' location and there are only two records for this area from 1972 (G. Shea *in litt.* May 2018; R. Sadlier *in litt.* May 2018; NSW BioNet). It is possible that a large amount of potential habitat occurs in the area for this species, however, their specific habitat is unknown, and few surveys have been undertaken to confirm its existence beyond the two known locations (G. Shea *in litt.* April 2018; S Mahony *in litt.* April 2018).

There is no available census data to assess the population size of *Lampropholis elongata* (G. Shea *in litt.* April 2018).

## Ecology

### *Habitat Requirements*

The specific habitat of *Lampropholis elongata* is unclear. It is known to inhabit cool, upland Eucalyptus woodland with tussock grasslands on both granitic and basaltic soils where it shelters during the day under leaf litter, logs and rocks (Cogger 2014; Greer 1997). However, it has also been recorded in adjacent open grassy paddocks and along the edges of a nearby pine (*Pinus radiata*) plantation (Greer 1997). It is suggested that native tussock grasslands with limited grazing could provide potential habitat, but intensively sheep-grazed paddocks of non-native grasses are unlikely to provide suitable habitat for the species (G. Shea *in litt.* May 2018).

There are no data available on the species' ability to disperse (S. Mahony *in litt.* April 2018). There is potentially a lot of habitat within the area with no obvious barriers to dispersal, but it may be limited to a small area by its evolutionary history (R. Sadlier *in litt.* May 2018). Much of the habitat adjacent to Riamukka State Forest is either pine forest plantations or developed for grazing. The ability of this species to inhabit these areas is unknown (R. Sadlier *in litt.* May 2018). Therefore, it is unclear whether habitat for the species is fragmented.

The locations where specimens of *Lampropholis elongata* were collected are within the altitudinal range of 1100 to 1500 m ASL (Greer 1997). It is unknown if the species occurs at lower (or higher?) altitudes (G. Shea *in litt.* May 2018).

Like other *Lampropholis* species, *L. elongata* is likely to forage for insects and other small prey among leaf litter (Cogger 2014).

### *Life cycle/Reproduction*

There have been no detailed behavioural or ecological studies on this species. The species is oviparous with clutch size ranging from two to six (Greer 1997). Egg laying has been recorded in late spring and early summer. Laboratory observed eggs were found to hatch 33-34 days after laying (Greer 1997). This species is thought to reach maturity in the first year for males and the second year for females (Greer 1997). There is no information available on longevity for this species.

## Threats

There are no documented threats to *Lampropholis elongata*. Potential threats to the species include grazing, forestry, climate change and fire.

Grazing occurs at both known localities, and forestry operations occur at the Grundy Fire Tower site. Although some individuals have been found in open paddocks and along the edge of a pine plantation, there are no data available as to the long-term impact of pastoralism and forestry on this species (Greer 1997; S. Mahony *in litt.* April 2018).

There is almost no knowledge of how a particular species is likely to respond to climate change, however this species may be particularly susceptible given it occupies high elevation forest habitats (R. Sadlier *in litt.* March 2017).

Lizards are generally considered to be relatively resilient to the short-term effects of fires as they can take refuge underground. However, reduced cover, heat stress and lack of invertebrate food items post-fire may make a species

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more vulnerable to predation, particularly in the more exposed habitats (Lunney *et al.* 1991). Other *Lampropholis* species (e.g. *L. guichenoti*) appear to have been negatively impacted initially by high-intensity fires, but populations have been shown to recover (Lunney *et al.* 1991; Penn *et al.* 2003). Little is known about the ecology of this species including its response to fire (S. Mahony *in litt.* April 2018).

## **Assessment against IUCN Red List criteria**

For this assessment, it is considered that survey effort for *Lampropholis elongata* has been inadequate and there is insufficient scientific evidence to support a listing outcome.

### *Criterion A Population Size reduction*

Assessment Outcome: Data Deficient.

Justification: To be listed as threatened under Criterion A the species must have experienced a population reduction of  $\geq 30\%$  (VU threshold) over three generations or 10 years (whichever is longer). No quantifiable data is available on the population size or dynamics of this animal and there are no data on population declines over any relevant time frames (10 years or 3 generations). Therefore, there is insufficient data to assess *Lampropholis elongata* against this criterion.

### *Criterion B Geographic range*

Assessment Outcome: Data Deficient.

Justification: Based on known records, *Lampropholis elongata* has an extremely restricted geographic range. Its extent of occurrence (EOO) was estimated to be 37 km<sup>2</sup>, based on a minimum convex polygon enclosing all mapped occurrences of the species, the method of assessment recommended by IUCN (2017). A species with an EOO of less than 100 km<sup>2</sup> qualifies under the Critical Endangered threshold. The area of occupancy (AOO) was estimated to be 32 km<sup>2</sup>, based on 2 x 2 km grid cells, the scale recommended for assessing area of occupancy by IUCN (2017). A species with an area of occupancy (AOO) less than 500 km<sup>2</sup> qualifies under the Endangered threshold.

It is possible that a large amount of potential habitat occurs in the area for this species however, their specific habitat is unknown and limited surveys have been undertaken to confirm its absence/presence in the surrounding area. As such, the Criterion B should be considered data deficient.

In addition to these thresholds, at least two of three other conditions must be met. These conditions are:

- a) The population or habitat is observed or inferred to be severely fragmented or number of locations = one (CR),  $\leq 5$  (EN) or  $\leq 10$  (VU).

Assessment Outcome: Data Deficient.

Justification: There is insufficient data on the specific habitat needs of *Lampropholis elongata* to determine whether it is severely fragmented in population or habitat. Additionally, there are no documented threats to determine the number of locations.

- b) Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals

Assessment Outcome: Data Deficient

Justification: There are no documented threats to this species for which to determine whether or not there is a continuing decline in population size, geographic distribution or habitat quality.

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## c) Extreme fluctuations.

Assessment Outcome: Data Deficient.

Justification: There is no available data to assess the likelihood of extreme fluctuations in population size or geographic distribution of *Lampropholis elongata*.

## Criterion C Small population size and decline

Assessment Outcome: Data Deficient

Justification: Currently there is no available census data to assess the population size or decline in *Lampropholis elongata*. Therefore, there is insufficient information to assess this species under Criterion C.

At least one of two additional conditions must be met. These are:

- C1. An observed, estimated or projected continuing decline of at least 10, 20 or 25% in 10, 5 or 3 years or 3, 2 or 1 generations, respectively (up to a max. of 100 years in future).

Assessment outcome: Data Deficient

Justification: There are no documented threats to *Lampropholis elongata* and no data on population declines over any relevant time frames to determine whether or not there is a continuing decline in population size.

- C2. An observed, estimated, projected or inferred continuing decline

Assessment outcome: Data Deficient

Justification: There are no documented threats to *Lampropholis elongata* for which to determine whether or not there is a continuing decline in population size.

In addition, at least 1 of the following 3 conditions:

- a (i). Number of mature individuals in each subpopulation  $\leq 50$  (CR);  $\leq 250$  (EN) or  $\leq 1000$  (VU)

Assessment outcome: Data Deficient

Justification: There is no available census data to assess number of mature adults per subpopulation of *Lampropholis elongata*.

- a (ii). % of mature individuals in one subpopulation is 90-100% (CR); 95-100% (EN) or 100% (VU)

Assessment outcome: Data Deficient

Justification: The percentage of mature adults per subpopulation is unknown. There is insufficient data to assess *Lampropholis elongata* against this criterion.

- b. Extreme fluctuations in the number of mature individuals

Assessment outcome: Data Deficient

Justification: There is no available data to assess the likelihood of extreme fluctuations in population size or geographic distribution of *Lampropholis elongata*.

## Criterion D Very small or restricted population

Assessment Outcome: Data Deficient.

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Justification: Currently there is no available census data to assess the population size of *Lampropholis elongata* and there are no documented threats to this species. The area of occupancy (AOO) was estimated to be 32 km<sup>2</sup>, based on 2 x 2 km grid cells, the scale recommended for assessing area of occupancy by IUCN (2017). This species AOO does not qualify to meet sub criterion D2 (<20 km<sup>2</sup>).

## *Criterion E Quantitative Analysis*

Assessment Outcome: Data Deficient.

Justification: There is insufficient data available to undertake a quantitative analysis to determine the extinction probability of *Lampropholis elongata*.

## References

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<http://www.iucnredlist.org/documents/RedListGuidelines.pdf>.
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Downloaded on **17 August 2018**.

## Expert Communications

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## Biodiversity Conservation Regulations 2017

### Clause 4.2 – Reduction in population size of species

(Equivalent to IUCN criterion A)

Assessment Outcome: Data deficient

<b><del>(1) – The species has undergone or is likely to undergo within a time frame appropriate to the life cycle and habitat characteristics of the taxon:</del></b>			
	(a)	<del>for critically endangered species</del>	<del>a very large reduction in population size, or</del>
	(b)	<del>for endangered species</del>	<del>a large reduction in population size, or</del>
	(c)	<del>for vulnerable species</del>	<del>a moderate reduction in population size.</del>
<b><del>(2) – The determination of that criteria is to be based on any of the following:</del></b>			
	(a)	<del>direct observation,</del>	
	(b)	<del>an index of abundance appropriate to the taxon,</del>	
	(c)	<del>a decline in the geographic distribution or habitat quality,</del>	
	(d)	<del>the actual or potential levels of exploitation of the species,</del>	
	(e)	<del>the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites.</del>	

### Clause 4.3 - Restricted geographic distribution of species and other conditions

(Equivalent to IUCN criterion B)

Assessment Outcome: Data deficient

<b>The geographic distribution of the species is:</b>			
	(a)	<del>for critically endangered species</del>	<del>very highly restricted, or</del>
	(b)	<del>for endangered species</del>	<del>highly restricted, or</del>
	(c)	<del>for vulnerable species</del>	<del>moderately restricted,</del>
<b>and at least 2 of the following 3 conditions apply:</b>			
	(d)	<del>the population or habitat of the species is severely fragmented or nearly all the mature individuals of the species occur within a small number of locations,</del>	
	(e)	<del>there is a projected or continuing decline in any of the following:</del>	
	(i)	<del>an index of abundance appropriate to the taxon,</del>	
	(ii)	<del>the geographic distribution of the species,</del>	
	(iii)	<del>habitat area, extent or quality,</del>	
	(iv)	<del>the number of locations in which the species occurs or of populations of the species,</del>	
	(f)	<del>extreme fluctuations occur in any of the following:</del>	
	(i)	<del>an index of abundance appropriate to the taxon,</del>	
	(ii)	<del>the geographic distribution of the species,</del>	
	(iii)	<del>the number of locations in which the species occur or of populations of the species.</del>	

### Clause 4.4 - Low numbers of mature individuals of species and other conditions

(Equivalent to IUCN criterion C)

Assessment Outcome: Data deficient

<b>The estimated total number of mature individuals of the species is:</b>			
	(a)	<del>for critically endangered species</del>	<del>very low, or</del>
	(b)	<del>for endangered species</del>	<del>low, or</del>

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	(c)	for vulnerable species	moderately low,
<b>and either of the following 2 conditions apply:</b>			
	(d)	a continuing decline in the number of mature individuals that is (according to an index of abundance appropriate to the species):	
		(i)	for critically endangered species very large, or
		(ii)	for endangered species large, or
		(iii)	for vulnerable species moderate,
	(e)	both of the following apply:	
		(i)	a continuing decline in the number of mature individuals (according to an index of abundance appropriate to the species), and
		(ii)	at least one of the following applies:
		(A)	the number of individuals in each population of the species is:
			(I) for critically endangered species extremely low, or
			(II) for endangered species very low, or
			(III) for vulnerable species low,
		(B)	all or nearly all mature individuals of the species occur within one population,
		(C)	extreme fluctuations occur in an index of abundance appropriate to the species.

**Clause 4.5 - Low total numbers of mature individuals of species**

(Equivalent to IUCN criterion D)

Assessment Outcome: Data deficient

<b>The total number of mature individuals of the species is:</b>			
	(a)	for critically endangered species	extremely low, or
	(b)	for endangered species	very low, or
	(c)	for vulnerable species	low.

**Clause 4.6 - Quantitative analysis of extinction probability**

(Equivalent to IUCN criterion E)

Assessment Outcome: Data deficient

<b>The probability of extinction of the species is estimated to be:</b>			
	(a)	for critically endangered species	extremely high, or
	(b)	for endangered species	very high, or
	(c)	for vulnerable species	high.

**Clause 4.7 - Very highly restricted geographic distribution of species–vulnerable species**

(Equivalent to IUCN criterion D2)

Assessment Outcome: Data deficient

For vulnerable species,	the geographic distribution of the species or the number of locations of the species is very highly restricted such that the species is prone to the effects of human activities or stochastic events within a very short time period.
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