

THE GENUS *ACANTHOPHIS* (SERPENTES: ELAPIDAE) IN WESTERN AUSTRALIA

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ABSTRACT

Three species of death adder are recognised in Western Australia, namely *Acanthophis antarcticus* (Shaw) in the far south, *A. praelongus* Ramsay in the far north, and *A. pyrrhus* Boulenger in the intervening arid regions. Descriptions and a key are provided.

INTRODUCTION

Differences between the various forms of *Acanthophis* are slight compared to the striking differences between them and other elapid snakes; hence the tendency to lump them as subspecies of a single species, *A. antarcticus*. However, in the Western Australian Wheat Belt the known range of *A. pyrrhus* (at Bunjil) comes within 150 km of that of *A. antarcticus* (at Cadoux) without the slightest indication of gene flow between them. Nor is there any evidence of gene flow between *A. pyrrhus* and *A. praelongus*, despite the proximity of their ranges in southern Kimberley. It therefore seems best to treat the three taxa tentatively as allospecies. The names of these taxa will also remain tentative until an Australia-wide revision is undertaken.

All the material studied in this revision is lodged in the herpetological collection (R series) of the Western Australian Museum.

SYSTEMATICS

Genus *Acanthophis* Daudin, 1803

Description

Moderately large, stout elapid snakes (total length up to 74 cm), remarkably similar in habit to viperid snakes. Head wide, deep and sharply marked off from very narrow neck. Forebody slender but rapidly broadening towards midbody. Tail slender, the distal portion laterally compressed and terminating in a soft slender spine.

Head scales smooth to strongly rugose, usually entire (most frequently the prefrontals are longitudinally divided; occasionally the preocular and

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rarely the lowest primary temporal are transversely divided). Rostral 2.5-4.0 times as wide as high. Internasals considerably smaller than prefrontals, except when latter divided. Frontal much longer than wide and narrower than supraoculars. Parietals about as long as wide. Nasal large, rarely semi-divided, in contact with preocular and third labial. Preocular usually single. Postoculars usually 2. Suboculars 2 or 3. Temporals usually 3 + 3 or 4, lowest primary largest but seldom completely separating fifth and sixth labials. Upper labials 6, last 2 much the largest, third and fourth higher than wide. Dorsal scale rows 17-23 at midbody, usually reducing to 17 before vent but increasing or reducing on neck according to species; the few rows nearest to ventrals always smooth; other rows smooth to strongly keeled (keeling strongest in adults and on neck and forebody, with keels often terminating in a spine). Ventrals 110-152. Anal single. Subcaudals 36-63, anteriorly single, posteriorly paired.

Dorsally various shades of brownish-grey to reddish-brown, with 40-70 diffuse pale bands across body and tail; bands usually about as wide as interspaces and often marked posteriorly by black spots. Compressed tip of tail blackish or whitish and contrasting more or less sharply with rest of tail. Lips more or less boldly patterned (scales usually pale-edged and dark-centred).

Distribution

Ranging widely in Australia (except far south-east and far south-west) and eastern half of Indo-Australian Archipelago (Ceram and Tanimbar east to New Guinea).

Key to Western Australian Species

- 1 Head scales smooth or weakly rugose; anterior dorsals weakly keeled or smooth; upper lips boldly patterned with white and black or dark brown *A. antarcticus*
- Head scales moderately or strongly rugose; anterior dorsals strongly keeled (except in juveniles); upper lips not boldly patterned 2
- 2 Head and body bright reddish-brown; head scales strongly rugose; midbody scale rows usually 19 or 21 *A. pyrrhus*
- Head and body dark brown or dark reddish-brown; head scales moderately rugose; midbody scale rows usually 23 *A. praelongus*

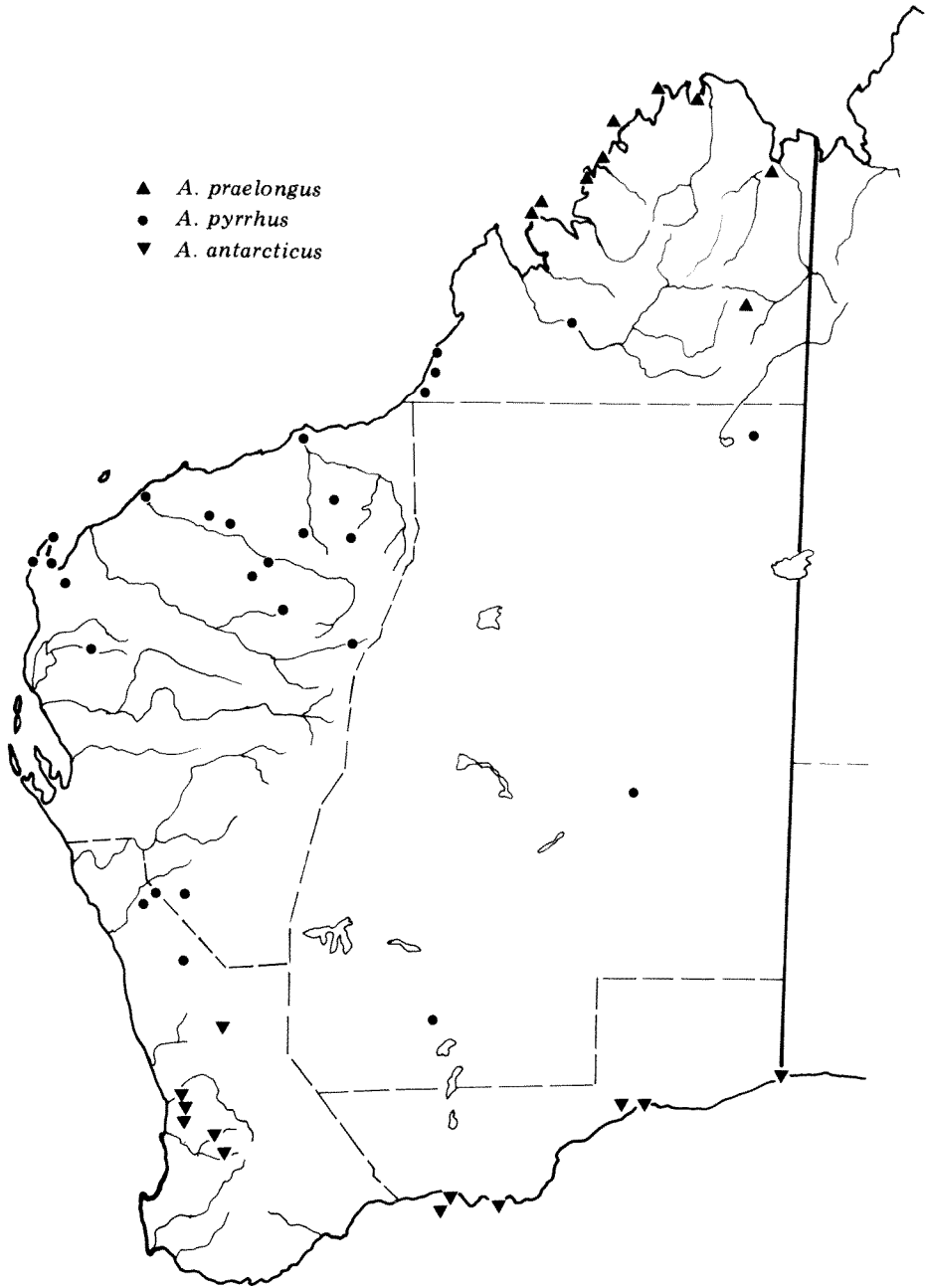


Fig. 1: Map of Western Australia showing location of specimens of *Acanthophis praelongus*, *A. pyrrhus* and *A. antarcticus*.

Acanthophis antarcticus Shaw, 1794

Fig. 2

Boa antarctica Shaw, 1794, The Naturalist's Miscellany, pl. 535. Type locality presumably vicinity of Sydney, N.S.W.

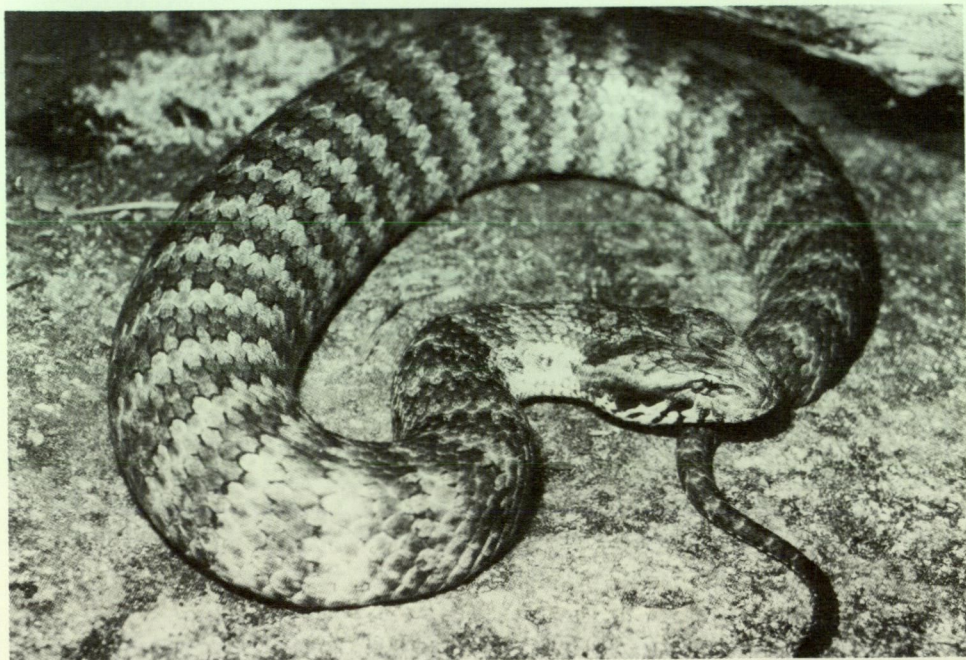


Fig. 2: An *Acanthophis antarcticus* from Canning Dam photographed by R.E. Johnstone.

Diagnosis

A very stout *Acanthophis* with upper head shields smooth or slightly rugose, anterior dorsal scales weakly keeled or smooth, posterior dorsal scales smooth or very weakly keeled, head deeper than in other species and upper lips more boldly patterned.

Description

Snout-vent length (mm): 132-585 (N 34, mean 414.8). Length of tail (% SVL): 14.7-25.2 (N 33, mean 20.3).

Prefrontals 2 (N 16), 3 (3) or 4 (3). Preoculars 1 (N 28) or 2 (3). Postoculars 2 (N 30) or 3 (1). Suboculars 2 (N 17) or 3 (14). Upper labials 6 (N 32). Temporals: primaries 3 (N 33); secondaries 3 (N 26), 4 (5) or 5 (1). Dorsal scale rows: 21 (N 34) or 23 (1) at midbody; seldom reducing on neck, i.e. usually not changing or increasing by 2 rows; usually reducing to 17 before vent. Ventrals 110-124 (N 25, mean 116.6). Subcaudals 36-50 (N 33, mean 45.4), 16-31 single (mean 23.6), 17-26 paired (mean 21.8).

Dorsal ground colour dark greyish-brown or dark brownish-grey. Back and tail with 40-50 pale grey or pale brown cross-bands; on posterior edge of bands usually a series of black spots (apices and posterior edges of scales). On back of head 1 or 2 pale oblique streaks, converging anteriorly. Snout pale brown peppered with blackish-brown. Often a broad blackish streak from orbit back through lower temples. Lips whitish barred with black or brown. Rest of lower surfaces whitish except for black or dark brown centres to gulars, anterior ventrolaterals (dorsals nearest to ventrals) and subcaudals, and occasionally for brown flecks on ventrals.

Distribution

Patchily distributed in southern Western Australia: the northern Darling Range, central Wheat Belt, Esperance district (including the Archipelago of the Recherche) and southern edge of Nullarbor Plain (Fig. 1).

Material

South-West Division (W.A.): Cadoux (19124); Lion Mill (248); Crystal Falls, Lesmurdie (28160); Maddington (12267); Pickering Brook (58779); Bartons Mill (8823); Karra-gullen (9643); Araluen (10393, 26689); Kelmscott (7402); Canning Dam (5948, 19804, 26803, 58080, 64698); Armadale (1523) and 10 km SE (26688); Byford (13693, 20577) and 5 km E (22332, 26351); Jarrahdale (5619, 9576, 34068); Congelin (8646); 14-mile Brook, 33 km W of Narrogin (2820).

Eucla Division (W.A.): Esperance (28096); Boxer I. (10102-3); North Twin Peak I. (53096); Caiguna (40197) and 22 km S (51814); Twilight Cove (44975); Eucla (2160).

Acanthophis pyrrhus Boulenger, 1898

Fig. 3

Acanthophis pyrrhus Boulenger, 1898, Ann. Mag. nat. Hist. (7) 2: 75. Station Point, N.T.

Diagnosis

A relatively slender, reddish *Acanthophis* with upper head shields strongly rugose, prefrontals often divided, anterior dorsal scales very strongly keeled, and posterior dorsals strongly keeled in adults (weakly or moderately keeled in juveniles).

Description

Snout-vent length (mm): 141-634 (N 40, mean 352.0). Length of tail (% SVL): 16.2-25.4 (N 28, mean 20.6).

Prefrontals 2 (N 11) or 4 (22). Preocular single (N 30). Suboculars 2 (N 30). Temporals: primaries 3 (N 31) or 4 (1); secondaries 3 (N 14), 4 (17) or 5 (1). Upper labials 6 (N 29). Dorsal scale rows: 17 (N 1), 19 (23), 20 (1) or 21 (24) at midbody; seldom reducing on neck, i.e. usually increasing by 2 rows or not changing; usually reducing to 17 before vent. Ventrals 126-152 (N 22, mean 139.3). Subcaudals 42-63 (N 25, mean 51.4), 11-39 single (mean 26.6), 6-37 paired (mean 24.8).



Fig. 3: An *Acanthophis pyrrhus* from Giralia photographed by T.M.S. Hanlon.

Dorsal ground colour reddish-brown. Body and tail with 50-70 pale reddish-brown or brownish-white cross-bands; on posterior edge of bands usually a series of black or dark brown spots. Lips and lower surfaces whitish.

Distribution

Arid zone of Western Australia from south Kimberley south to the northern Wheat Belt and Eastern Goldfields (Fig. 1). Also arid interior of eastern Australia.

Material

Kimberley Division (W.A.): Mt Wynne (2138); Lagrange and vicinity (3437, 28097, 28100-7, 70701); Frazier Downs (28098, 46079); Anna Plains (28099).

North-West Division (W.A.): DeGrey (2130); Marble Bar (438, 12674, 14061) and 10 km N (12672); Mardie (13873, 26822); Woodstock (13870); Mt Herbert (20239); Tambrey (4550); Nullagine (9335); Vlaming Head (2999, 19674); Neds Well (28325); Exmouth (26759); mouth of Yardie Creek (61495); Exmouth Gulf (8658); 5 km E of Giralia (61357); Wittenoom (17121, 18493) and 11 km E (15100); Wittenoom Gorge (8886, 21538); Marandoo (56097); 31 km SE of Mt Meharry (67921); Mundiwindi (12280); near Middalya (49985); Wurarga (7868, 10033).

South-West Division (W.A.): Tallering (9996); Mullewa (70700); Bunjil (1767).

Eastern Division (W.A.): Balgo (69975); Gahnda Rockhole (15101); Kalgoorlie (70699).

Acanthophis praelongus Ramsay, 1877

Fig. 4

Acanthophis praelongus Ramsay, 1877, Proc. Linn. Soc. N.S.W. 2: 72. Cape York, Qld.
Acanthophis antarcticus rugosus Loveridge, 1948, Bull. Mus. Comp. Zool. 101: 392.
Merauke, south-eastern West Irian.



Fig. 4: An *Acanthophis praelongus* from 45 km NNE of Halls Creek photographed by G. Harold.

Diagnosis

A moderately stout *Acanthophis*, intermediate between *A. antarcticus* and *A. pyrrhus* in several respects (coloration, habit, rugosity of head shields, keeling of dorsals and number of ventrals and subcaudals). Distinguishable from *A. pyrrhus* by darker coloration, stronger colour pattern, smooth or nearly smooth posterior dorsals, undivided prefrontals, and more numerous midbody scales (usually 23, v. usually 19 or 21). Distinguishable from *A. antarcticus* by head shields more rugose, strongly keeled anterior dorsals, free edge of supraocular often raised, lower fourth labial (not much higher than wide), and dorsal scale rows usually fewer on neck than at midbody.

Description

Snout-vent length (mm): 166-482 (N 14, mean 361.1). Length of tail (% SVL): 19.0-25.2 (N 13, mean 21.5).

Prefrontals 2 (N 13). Preocular single (N 13). Postoculars 2 (N 11) or 3 (2). Suboculars 2 (N 9) or 3 (4). Temporals: primaries 3 (N 13) or 4 (1); secondaries 3 (N 11), 4 (2) or 5 (1). Upper labials 6 (N 14). Dorsal scale rows: 21 (N 2) or 23 (12) at midbody; usually reducing by 2 or 4 rows on neck; usually reducing to 17 before vent. Ventrals 122-134 (N 12, mean 126.9). Subcaudals 47-57 (N 15, mean 50.5), 19-39 single (mean 28.3), 14-29 paired (mean 22.2).

Dorsal ground colour dark brown to dark reddish-brown. Body and tail with about 50 cross-bands; scales mostly pale reddish-brown but sometimes intermixed with brownish-white scales; bands occasionally edged with very dark brown. Upper lips dark brown or dark reddish-brown, the lower halves of scales sometimes edged with brownish-white. Lower surfaces whitish except for black, blackish-brown or dark reddish-brown spot on mental, lower labials, two or three lowest scale rows on side of neck, lowest scale row on body and lateral edge of each ventral and subcaudal.

Distribution

Subhumid and semi-arid zones of Kimberley Division, south to the Yampi Peninsula and nearly to Halls Creek (Fig. 1). Also north of Northern Territory, northern Queensland and southern New Guinea.

Remarks

A. praelongus has hitherto been considered conspecific with *A. antarcticus*. However, *A. praelongus* appears to be no closer to *A. antarcticus* than to *A. pyrhus*. As the latter is almost certainly a full species, it seems advisable to treat *A. praelongus* too as a full species until hybrids or intergrades are found between it and other species.

Material

Kimberley Division (W.A.): Gibson Point, Parry Harbour (70968); Kalumburu (34078-9); Bigge I. (41457); Prince Regent River Reserve in 15°20'S, 124°56'E (46836); Kunmunya (5709); Koolan I. (37761-4); Wotjulum (11241); Wyndham (10628); 45 km NNE of Halls Creek (70690).

Northern Territory: Yirrkala (13517a-b); Ranken River (21519).

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