

# Neotype of *Argis lar* Compared with *Argis dentata* (Crustacea, Decapoda)<sup>1</sup>

BY H. J. SQUIRES

*Fisheries Research Board of Canada*  
*Biological Station, St. John's, Nfld.*

## ABSTRACT

The type specimens of *Argis lar* were collected in the north Pacific. They are no longer in existence. Specimens identified as *A. lar* by Rathbun, from the type locality and resembling the original specimens of Owen, are used to set up a neotype. This is done because some authors have assumed that specimens of *Argis* collected in the north Atlantic were *A. lar* and not *A. dentata* which they believed was not a valid species. Also the distribution of both species in northern Canadian waters is not yet clearly understood. Outstanding differences between the two species are discussed.

## INTRODUCTION

OWEN'S TYPE SPECIMEN of *Argis lar* was a large female, 4 inches in length. It was accompanied by some smaller paratypes. They were collected in the Bering Sea by Captain F. W. Beechey in the *Blossom* during 1833-34 and were deposited in either the Museum of the Royal College of Surgeons or the Museum of the Zoological Society of London. However, the type material was found to have been lost when searched for after the Museum of the Zoological Society had been disbanded. Later thorough searches also failed to locate it (Dr I. Gordon, personal communication).

It has been found necessary to establish a neotype of this species for two reasons.

- (a) Its identity has been confused with that of *Argis dentata* Rathbun. Rathbun (1902, 1904) separated both species in material collected from the type locality (north Pacific). It is likely that Rathbun did not see Owen's type of *Argis lar* but its description fitted one of the species, and she named the other *A. dentata*. Danish authors have not accepted *A. dentata* as a valid species (Hansen, 1908; Stephensen, 1935; Heegaard, 1941). Their specimens were collected in Greenland. Rathbun (1904) states that only *A. dentata* of the genus *Argis* was collected in Greenland by the Princeton Expedition. Also, specimens of *Argis lar* from Greenland that I have examined in the Universitets Zoologisk Museum, Copenhagen, and the British Museum of Natural History, London, were all *A. dentata*.
- (b) Although Rathbun (1904) believed that *A. lar* was more of an Arctic species than *A. dentata* she found that both species were taken occasionally over most of their range in the north Pacific. However, *A. lar* has not been

---

<sup>1</sup>Received for publication October 3, 1962.

collected in the Canadian Arctic east of the Beaufort Sea nor in the north-west Atlantic (Squires, 1957, 1963). The identity of both species must be made clear to establish the limits of their distribution in the Canadian Arctic.

#### SYNONYMY AND DESCRIPTION OF *ARGIS LAR*

[The genus *Argis* (Krøyer, 1842) was erected in a review of the older genus *Crangon* s.l. It takes precedence over *Nectocrangon* (Brandt, 1851). Since Krøyer's specimens were from Greenland, the actual genotype was *A. dentata* which he had identified as *Crangon lar* from Owen's description.]

*Argis lar* (Owen, 1839)  
*Crangon lar*, Owen, 1839  
*Nectocrangon lar*, Brandt, 1851 (probably in part)  
 " " Stimpson, 1869 ( " " " )  
 " " Ortmann, 1895 ( " " " )  
 " " Rathbun, 1904

[The specimen here designated as the neotype is an adult female, 17 mm in carapace length. It was captured with 20 other specimens by the U.S. Fisheries Commission Steamer *Albatross* at Station 3251, between Bristol Bay and the Pribilof Islands at 25½ fathoms deep in June 1900. The neotype is labelled as *Crangon lar* Owen, 1839, Catalogue No. 26837, and is deposited in the United States National Museum, Washington, D.C.]

Owen's description is abridged as follows:

"exterior smooth and shining; carapace with 2 spines behind the rostrum one on each side at the anterior margin and another some way behind these; rostrum elevated but truncate at the apex; the eyes immediately beneath the rostrum, their peduncles parallel and in line with the body; 2nd joint of the antennules dilated, spiniform externally, its flagella barely exceeding the antennal scales; antennal scales not exceeding the length of the carapace; dactyls of the 4th and 5th pairs of legs compressed and lanceolate; abdominal segments simply ciliate inferiorly, the first five segments carinate, the last with a double carina which is continued along the telson, towards the end of which they become indicated by lateral spines (Owen, 1839)."

Rathbun (1904) adds to this description as follows:

"carapace about two-fifths or one-third as long as the abdomen; the distance between the two median dorsal spines greater than the distance from the anterior spine to the anterior margin and about equal to or less than the distance from the posterior spine to the posterior margin of the carapace; tubercle sometimes behind the rostral spine; a low blunt irregular carina runs from the orbit nearly to the posterior margin; below this a spine on each side; blade of antennal scale exceeds its spine; chela from 3½ to 4 times as long as the width of the palm: the anterior margin forms an angle of about 45° with the side margin; 1st to 5th abdominal segments with a sharp median carina, 6th segment with two sharp carinae, which toward the end become lower and may disappear altogether in front of the posterior margin; pleura of first 4 segments with rounded entire angles, 5th and 6th segments with an acute tooth or small spine at the postero-inferior angles, 6th segment with a superolateral spine on each side of the posterior margin; the telson with two blunt carinae armed with 3 pairs of spinules on the terminal half. The male is different from the female, smaller, eyes considerably larger; anterior margin of the hand more transverse makes the palm look longer; abdominal carinae are higher and thinner, especially on the 3rd segment; the infero-posterior angle of the 4th segment may have a small spine. The abdomen is more elongate, notably the 6th segment."

Rathbun (1904) further states that the chief differences between *A. lar* and *A. dentata* are that the carinae of the 6th abdominal segment in *A. dentata* end posteriorly in a small sharp tooth or spine, and the chela is longer than in *A. lar*. The chela was said to be 5 times as long as the width of the palm (Rathbun, 1904). Later when writing about *A. dentata* from the Atlantic the length of the chela was said to be  $3\frac{1}{2}$  to 4 times the width of the palm, and the spine of the antennal scale was said to exceed the blade (Rathbun, 1929).

## DISCUSSION

The features of *A. lar* and *A. dentata* delineated by Owen (1839) and Rathbun (1904) are essentially the same in both species. But there is one exception to this. The morphology of the 6th abdominal segment described by Rathbun (1904) gives a clear difference which may be used to separate the species. Also a few other less obvious differences exist. These are enumerated in Table I.

TABLE I. Comparison of some distinctive features of *Argis lar* and *A. dentata*. Specimens of *A. lar* from between Bristol Bay and Pribilof Islands;  $25\frac{1}{2}$  fathoms; June 1960; USNM 26837, and from off Kamchatka; 13 fathoms; June 21, 1900; USNM 26868. Specimens of *A. dentata* from James Bay (Hudson Bay), Lat.  $52^{\circ}55'N$ , Long.  $79^{\circ}58'W$ , 60 fathoms, *Calanus* station 59-6, June 23, 1959.

<i>Argis lar</i> (39 specimens)	<i>A. dentata</i> (40 specimens)
1. Dorsal carinae of the 6th abdominal segment <i>low and rounded</i> posteriorly	Dorsal carinae of the 6th abdominal segment <i>high and pointed</i> posteriorly (each carina forming a tooth posteriorly)
2. Three pairs of lateral spines on the telson equidistant or almost so	The median pair of lateral spines on the telson nearer to the distal than to the proximal pair (Fig. 2)
3. A smooth heavy ridge across the 6th abdominal segment dorsally joins the proximal ends of the two carinae	The ridge across the 6th abdominal segment dorsally does not join the proximal ends of the carinae, and has a fringe of short setae directed posteriorly
4. Outer ramus of the uropod almost as long as the inner ramus	Outer ramus of the uropod distinctly shorter than the inner ramus (Fig. 3)
5. Telson with setal fringe scanty in most specimens	Setal fringe on telson profuse in most specimens
6. Sixth abdominal segment 50-70% of carapace length	Sixth abdominal segment 42-58% of carapace length (Fig. 4)

Rathbun (1904) observed that in *A. dentata* the dorsal carinae of the 6th abdominal segment each ended posteriorly in a sharp tooth or spine, while in *A. lar* these carinae virtually disappeared at their posterior ends. The posterior end of the segment is rounded off on both sides dorsally and is lower than the anterior end. The drawing of Owen's type specimen of *A. lar* shows that the end of the 6th abdominal segment is rounded although possibly obscured by the hand colouring (Owen, 1839).

Some other differences in morphology of both species are as follows:

- (a) The anterior ends of the dorsal carinae of the 6th abdominal segment are coalesced with the rounded ridge which encircles the segment anteriorly in *A. lar*. In *A. dentata* the ends of the carinae are free from this ridge which has a short fringe of setae (Fig. 1).
- (b) The 6th abdominal segment is proportionately shorter in *A. lar* than in *A. dentata* (Fig. 4). Most of the specimens measured were females.
- (c) The three pairs of lateral spines on the telson are more nearly equidistant from each other in *A. lar* than in *A. dentata* (Fig. 1 and 2).
- (d) The inner ramus exceeds the outer ramus of the uropod by a shorter proportionate amount in *A. lar* than in *A. dentata* (Fig. 1 and 3).

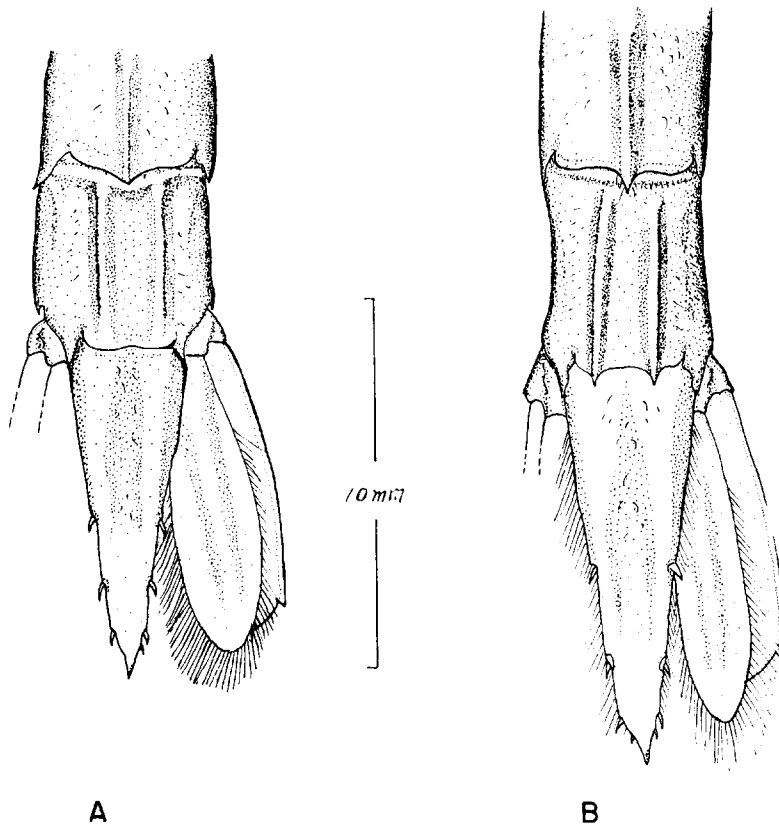


FIG. 1. A: *Argis lar* from between Bristol Bay and the Pribilof Islands, Alaska; 25½ fathoms; June 1900. United States National Museum, 21; Smithsonian Institution No. 26837. (Formerly identified by Mary J. Rathbun.) Drawn from the neotype. B: *Argis dentata* from *Calanus* Expeditions Station 59-6, James Bay, 52°55'N, 79°58'W, 60 fathoms, June 23, 1959. Both specimens were females 17 mm in carapace length.

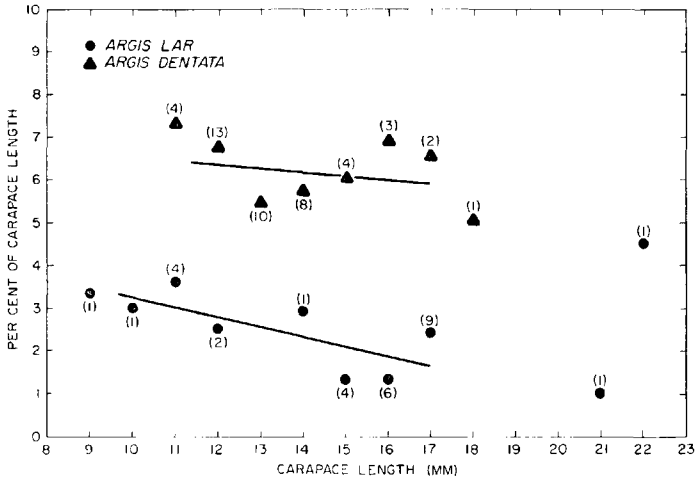


FIG. 2. Average amount by which the distance between the proximal and median pairs of spines exceeds the distance between median and distal pairs (measured between bases of spines), expressed as percentage of carapace length. Numbers in parentheses are numbers of individuals measured at each point.

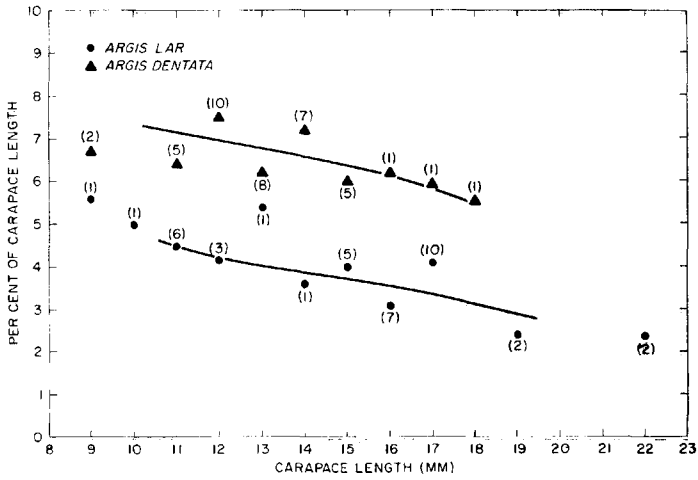


FIG. 3. Average amount by which the length of the inner ramus of the uropod exceeds the outer ramus (measured from the insertion to the tip excluding setae), expressed as a percentage of carapace length. Numbers in parentheses are numbers of individuals measured at each point.

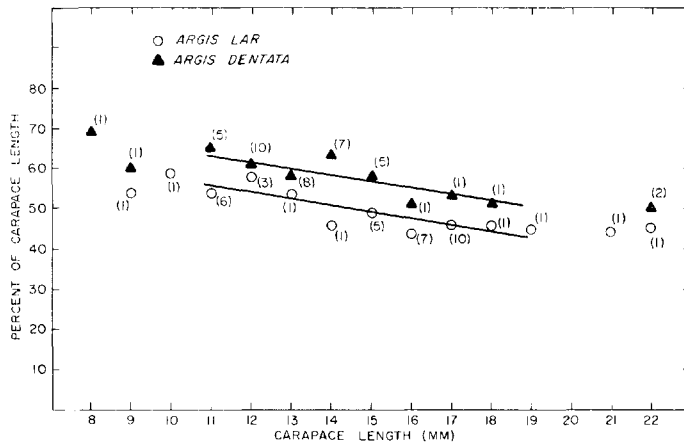


FIG. 4. Average length of 6th abdominal segment (measured from proximal ridge to distal edge, including spines in *dentata*), expressed as a percentage of carapace length. Numbers in parentheses are numbers of individuals measured at each point.

The few specimens of *A. dentata* from the Pacific that I have seen have a considerable number of short setae over the integument generally, giving a somewhat hirsute appearance under magnification. Since Owen (1839) states that his specimens were smooth it is most likely that they were the *A. lar* later recognized by Rathbun (1904) rather than specimens of *A. dentata* which may have been present in the type locality. Also, since specimens of *A. dentata* from the Atlantic are invariably smooth it is possible that there is a difference between the Atlantic and Pacific forms of this species.

#### ACKNOWLEDGMENTS

Sincere thanks are due to Dr Fenner A. Chace, Jr., of the United States National Museum who lent specimens of *Argis lar* from two localities in the northern Pacific; Dr Isabella Gordon of the British Museum (Natural History) who made material available at the Museum and advised on the loss of type specimens of *A. lar* Owen; Mr T. H. Butler of the Fisheries Research Board of Canada, Biological Station, Nanaimo, who sent specimens of *Argis* from his collections; and Drs J. A. Allen, L. B. Holthuis, and W. Templeman who read the manuscript.

The work for this paper was done at the Dove Marine Laboratory, Cullercoats, Northumberland, England. Appreciation is expressed for the space and facilities provided at that institution.

## REFERENCES

- BRANDT, J. F. 1851. Krebse. In A. T. Middendorff *et al.*, Reise in den äussersten Norden und Osten Sibiriens, 1843-44, **2**(1): 77-148.
- HANSEN, H. J. 1908. Crustacea malacostraca. I. Danish *Ingolf* Expedition, **3**(2): 1-120.
- HEEGAARD, P. E. 1941. Decapod crustaceans. The zoology of East Greenland. *Medd. om Grønland*, **121**(6): 1-72.
- HOLMES, S. J. 1900. California stalk-eyed Crustacea. *Occas. Papers California Acad. Sci.*, **7**: 1-262.
- KRØYER, HENRIK. 1842. De hidtil bekjendte nordiske Krangon-Arter. *Naturhistorisk Tidsskrift*, Ser. 1, **4**: 217-276.
- ORTMANN, A. E. 1895. A study of the systematic and geographic distribution of the decapod family Crangonidae Bate. *Proc. Acad. Nat. Sci. Philadelphia*, pp. 173-197.
- OWEN, RICHARD. 1839. Crustacea. In Zoology of Captain Beechey's voyage in H.M.S. *Blossom*, 1833-34. Henry G. Bohn, London, pp. 77-92, pls. 24-28.
- RATHBUN, M. J. 1902. Descriptions of new decapod crustaceans from the west coast of North America. *Proc. U. S. Nat. Mus.*, **24**(1272): 885-905.
1904. Decapod crustaceans of the northwest coast of North America. *Harriman Alaska Expedition*, **10**: 1-190.
1929. Canadian Atlantic fauna. 10. Arthropoda. 10 m. Decapoda. Fish. Res. Bd. Canada, 38 pp.
- SQUIRES, H. J. 1957. Decapod Crustacea of the *Calanus* expeditions in Ungava Bay, 1947 to 1950. *Canadian J. Zool.*, **35**: 463-494.
1963. Decapod crustacean fauna of the northwest Atlantic. Ph.D. thesis, University of Durham, 373 pp.
- STEPHENSEN, K. 1935. The Godthaab Expedition, 1928. Crustacea Decapoda. *Medd. om Grønland*, **80**(1): 1-94.
- STIMPSON, W. 1860. Prodomus discriptionis animalium evertibratorum, quae in Expeditione ad Oceanum Pacificum septentrionalem, a Republica Federata missa, Cadwaladaro Ringgold et Johanne Rodgers ducibus, observavit et descripsit. Pars VIII. Crustacea Macrura. *Proc. Academy Nat. Sci. Philadelphia*, **12**: 22-48.

