

MARINE RECORD

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New record of the blunt bladed shrimp *Spirontocaris truncata* (Caridea: Thoridae) from the Gulf of Alaska

David T. Drumm^{1*} and Sean Rohan²

Abstract

Background: The blunt bladed shrimp *Spirontocaris truncata* inhabits sponges and is typically found on subtidal rocky reefs, and is distributed from the Strait of Georgia, British Columbia to Baja California, Mexico at depths of 37 to 92 m.

Results: This paper presents a new record of this species obtained from stomach contents of the Pacific cod, *Gadus macrocephalus*, from the northern Gulf of Alaska, which extends its distribution range over 1800 km. This is the first record of the species in Alaska.

Conclusions: A large northward range extension was documented for the shrimp *Spirontocaris truncata*. A clear understanding of the distribution of marine species is a necessary prerequisite for effective monitoring and predictions about future changes to marine ecosystems.

Keywords: Alaska, Gulf of Alaska, Thoridae, *Spirontocaris*, Blunt bladed shrimp

Introduction

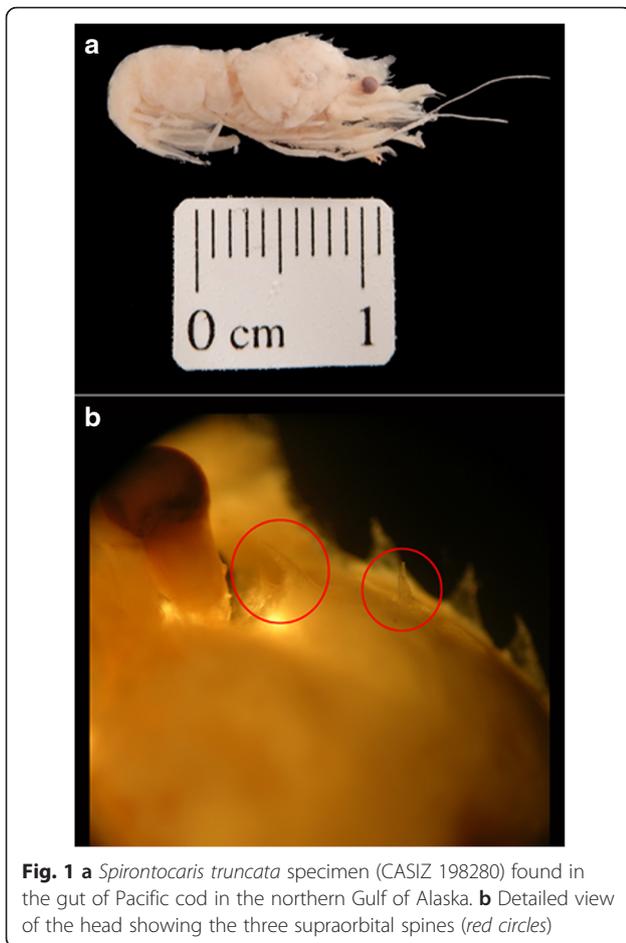
The National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) has conducted fisheries bottom trawl surveys along contiguous sections of the North American coast in the eastern North Pacific Ocean since the mid-1970s (Pereyra et al., 1978; Gunderson and Sample, 1980) and the surveys provide valuable data and specimens for studying the geographic distributions of a wide variety of marine taxa. The NMFS Alaska Fisheries Science Center (AFSC) conducts surveys on the continental shelf and upper slope to a bottom depth of 1000 m in the Gulf of Alaska (von Szalay et al., 2010). Recent efforts by NMFS to document the diversity of Alaska's marine invertebrate fauna (Drumm et al., 2013; Drumm et al., in press) have revealed new records for species in the area. A standard practice for AFSC surveys is the collection and identification of fish stomach contents to understand the food habits of commercial fishes.

The Thoridae (= Hippolytidae *sensu lato* in part, see De Grave et al., 2014) is the largest family of marine shrimps in the northeastern Pacific Ocean, containing eight genera and 57 described species (De Grave and Fransen, 2011). Thorid shrimps occur worldwide but are most diverse in cooler waters of the northern hemisphere. The genus *Spirontocaris*, commonly called 'blade shrimps', is currently composed of 22 species (Fransen, 2015) distributed in the North Pacific Ocean, the North Atlantic Ocean, and the Arctic Ocean (Butler, 1980). The species are characterized by their distinctive bladed rostrums, possess two or more supraorbital spines, and have an exopod on the third maxilliped.

Examination of the stomach contents of a specimen of the Pacific cod, *Gadus macrocephalus* Tilesius, 1810 that was collected in the northern Gulf of Alaska revealed the presence of a fully intact, nearly undigested specimen of *Spirontocaris truncata* Rathbun, 1902, extending its distribution range approximately 1800 km to the north. It is the first record of this species in Alaskan waters. With the addition of this species, there are now 13 species of *Spirontocaris* recorded from Alaska (Drumm et al., in press). Material is deposited at the California Academy of Sciences (CASIZ).

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Systematics

Order DECAPODA Latreille, 1802
 Infraorder CARIDEA Dana, 1852
 Superfamily ALPHEOIDEA Rafinesque, 1815
 Family THORIDAE Kingsley, 1879
Spirontocaris truncata Rathbun, 1902
 (Figure 1)

Material examined

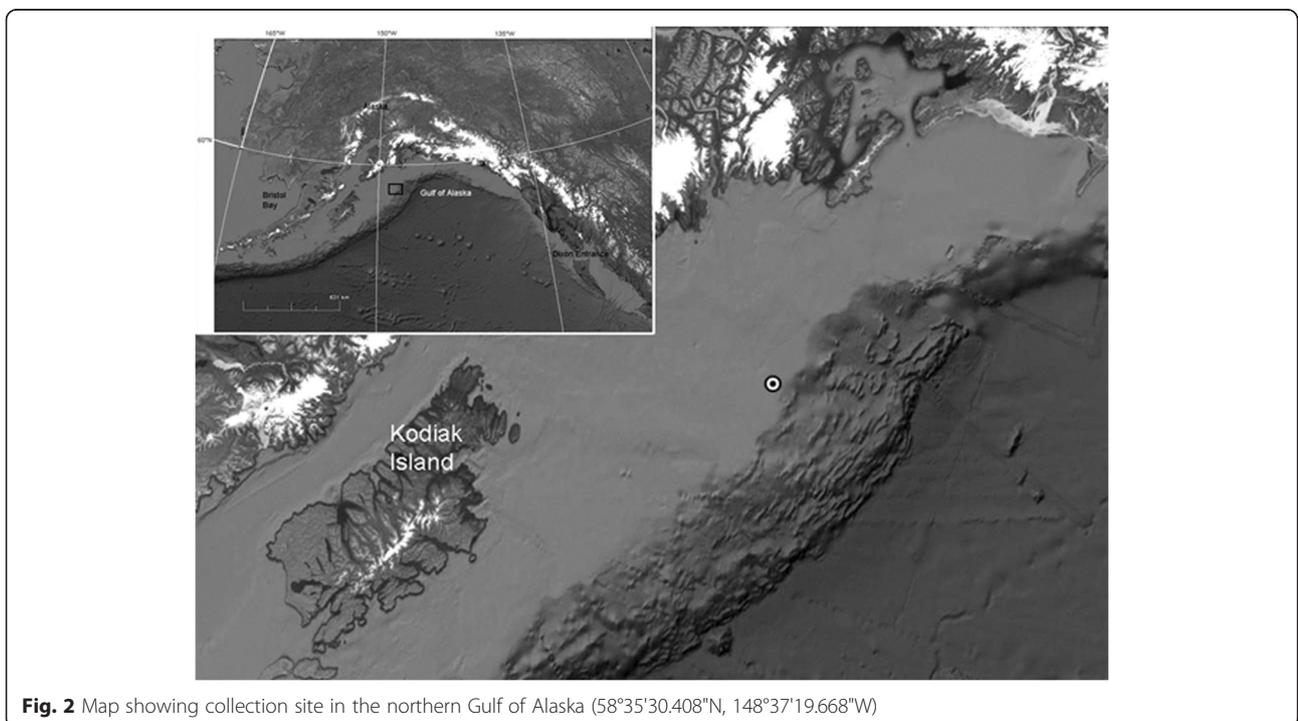
One ♀ (58°35'30.408"N, 148°37'19.668"W) in the northern Gulf of Alaska (Fig. 2), carapace length 5.4 mm, total length 22 mm, 150 m, 17 July 2011, CASIZ 198280.

Distribution

Type locality: Hecata Bank, Oregon, USA. Northern Gulf of Alaska (new record); Strait of Georgia, British Columbia to Baja California, Mexico, 37–92 m (Wicksten, 2012).

Results and discussion

The single specimen was identified using the key in Butler (1980). The three supraorbital spines are shown in Fig. 1b. The only other species that have three or more supraorbital spines are *S. prionota* (Stimpson, 1864) and *S. pectinifera* (Stimpson, 1860). *Spirontocaris truncata* can easily be distinguished from these two species by the shape of the rostrum. The lateral margins of the abdominal pleura in *S. pectinifera* are pectinate (Hayashi, 1977) and are smooth in *S. truncata*. The rostrum ventral spine count falls slightly outside the range given in Butler (1980). The specimen has 9 upper/6 lower,



versus 7-9 upper/3-4 lower in Butler (1980). Determining whether this represents intraspecific variation or a putative new species will have to await further examination of more specimens.

We are confident that *S. truncata* truly occurs in the Gulf of Alaska, as the specimen was found to be fully intact and nearly undigested in the Pacific cod stomach, evidence of recent consumption. The capture locality was about 1200 km from Canadian waters. It is not surprising that this species has gone unnoticed in Alaskan waters until now, as all previous records have come from subtidal rocky reefs and banks (Wicksten, 2012) and all tows conducted by NMFS groundfish surveys are strategically placed to avoid rocky areas.

Conclusions

A large northward range extension was documented for the shrimp *Spirontocaris truncata*. A clear understanding of the distribution of marine species is a necessary prerequisite for effective monitoring and predictions about future changes to marine ecosystems.

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Authors' contributions

DTD drafted the manuscript and SR collected and initially identified the shrimp species. Both authors read and approved the final manuscript.

Competing interests

The authors declare that they have no competing interests.

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