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# *Chromoplexaura marki*

Red Whip Gorgonian

Phylum: Cnidaria  
Class: Anthozoa  
Order: Alcyonacea  
Family: Plexauridae

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**Taxonomy:** The type specimen for this species was named *Euplexaura marki* Kükünthal 1913. Recent work has separated *Chromoplexaura marki* from the genus *Euplexaura*, whose species are primarily located in the Indo-Pacific (Williams 2013). Current phylogenetic work has indicated that the family Plexauridae is polyphyletic, and species are sometimes associated with genera from other families (McFadden et al. 2006; Williams 2013; Wirshing et al. 2005). Some superficial similarities exist between *Chromoplexaura marki* and various species of *Swiftia* found in the Eastern Pacific, but more phylogenetic work is needed to determine if these species belong to the same or different genera (Williams 2013).

## Description

**Size:** *Chromoplexaura marki* colonies can reach upwards of 15 cm in height, with individual branches 1.0 to 11 cm long. The main stem and branches can be 2.5 to 4.0 mm in diameter (Williams 2013).

**Color:** Colonies have a uniform orange-red or red coloration. Exposed central axis structures have a dull brown-black appearance. Exserted polyps are translucent white in color (Fig. 1).

**General Morphology:** In general, whole colonies are erect and planar in form. A central, basal stem supports multiple lateral branches that are elongate, slightly curved, and slender with slightly enlarged or swollen tips. The central axis is proteinaceous and hollow.

**Mouthparts:** The polyps are approximately 1.0 mm in width and can be fully retractive but often form low and rounded projections (Williams 2013). Each polyp bears 8 tentacles lined with pinnules.

**Other species-specific parts:** The sclerites in the coenenchyma are composed primarily of radiates, with spindles and ovoid forms roughly 0.06 – 0.24 mm in length (Williams

2013) (Fig. 2). On the polyps, the sclerites are 0.04 – 0.09 mm long and are spindles and rods with pronounced tubercles (Williams 2013). All sclerites for *Chromoplexaura marki* are pigmented and will retain their color even after fixation in ethanol or formalin.

**Sexual Dimorphism:** None described or observed for this species.

## Possible Misidentifications

Specimens originating from the Indo-Pacific likely belong to the genus *Euplexaura* and may bear some morphological similarities. However, species in *Euplexaura* have colorless sclerites semi-spherical or ovoid in shape, leading to easy identification (Fabricius and Alderslade 2001).

*Chromoplexaura marki* might also be confused for several species belonging to the genera *Swiftia* or *Thesea*, which can be found in the Eastern Pacific or the Atlantic. Members of *Swiftia* have polyps that emerge from distinct calyx structures and bear mostly spindle-shaped sclerites. Species in the genus *Thesea* lack the calyx protuberances around each polyp but also have spindle-shaped sclerites (Williams 2013).

## Ecological Information

**Range:** *Chromoplexaura marki* colonies have been observed from central Oregon to southern California (Williams 2013).

**Local Distribution:** Colonies are found along the continental slope on subtidal rocks and outcrops. The rocky reef offshore of Cape Arago holds numerous colonies.

**Habitat:** Sublittoral benthic communities on rocky bottom and other hard substrates.

**Temperature:** The temperature range this species can tolerate remains unknown.

**Depth:** 9 – 90 meters

**Associates:** The epizootic barnacle *Conopea galeata* is often found attached to the host coral's exposed axial skeleton. Older

barnacles become engulfed in coenenchymal tissue and form gall-like growths along the branches (Williams 2013).

**Abundance:** Unknown for this species

### Life-History Information

**Reproduction:** Reproductive patterns and tendencies are currently unknown for *Chromoplexaura marki*. Broadcast spawning is common in most sub-orders of Alcyonacea (Watling et al. 2011). Species in the closely related genus *Swiftia* are usually gonochoristic with maximum oocyte sizes ranging between 197 - 726 µm (Feehan and Waller 2015). Members of the genus *Swiftia* likely undergo free-spawning, and no evidence of brooding has been observed (Feehan and Waller 2015). Colonies of the related species *Plexaura kuna* undergo free-spawning in large, synchronized events (Lasker et al. 1998).

**Larva:** The exact larval form for *Chromoplexaura marki* is unknown. Planula larvae, however, have been observed in the related genus *Plexaura* (Lasker et al. 1998). The large oocyte diameters observed in *Swiftia* and other deep-sea octocorals have led many to hypothesize that their larvae are lecithotrophic (Watling et al. 2011).

**Juvenile:** Little is known about the juvenile stages of *Chromoplexaura marki* or other cold-water soft corals.

**Longevity:** Unknown for this species. Large colonies in the related genus *Paramuricia* have been estimated at over 60 years old (Linares et al. 2007).

**Growth Rate:** The growth rates for *Chromoplexaura marki* remain unknown. However, past studies have estimated 0.8 cm/year for the species *Paramuricia clavata* (Coma et al. 2001; Linares et al. 2007).

**Food:** The dietary compositions for cold-water gorgonian corals remains understudied. Based on data collected from related shallow-water species, it is likely that Plexaurid corals consume a variety of planktonic organisms, invertebrate eggs, and particulate organic matter (Ribes et al. 2003; Watling et al. 2011).

**Predators:** Nudibranch species such as *Tritonia festiva* likely feed on coenenchyme tissue, causing the axial skeleton to become exposed. Similar behavior for *T. festiva* has been observed when individuals have been

found on colonies of *Lophogorgia* (Gomez 1973) and the sea pen *Ptilosarcus guernei* (Birkeland 1974).

**Behavior:** The behavior patterns for *Chromoplexaura marki* and other Plexaurid corals remain unexamined.

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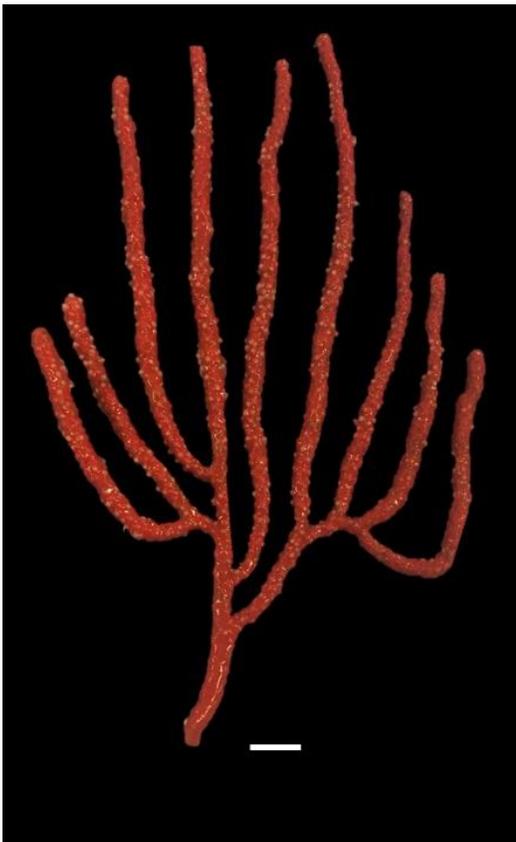


Fig. 1. A whole colony of *Chromoplexaura marki* showing white, exserting polyps along the length of the branches. The scale bar represents 1 cm. This colony was collected from the Cape Arago Reef at 50 m on June 15<sup>th</sup>, 2020.

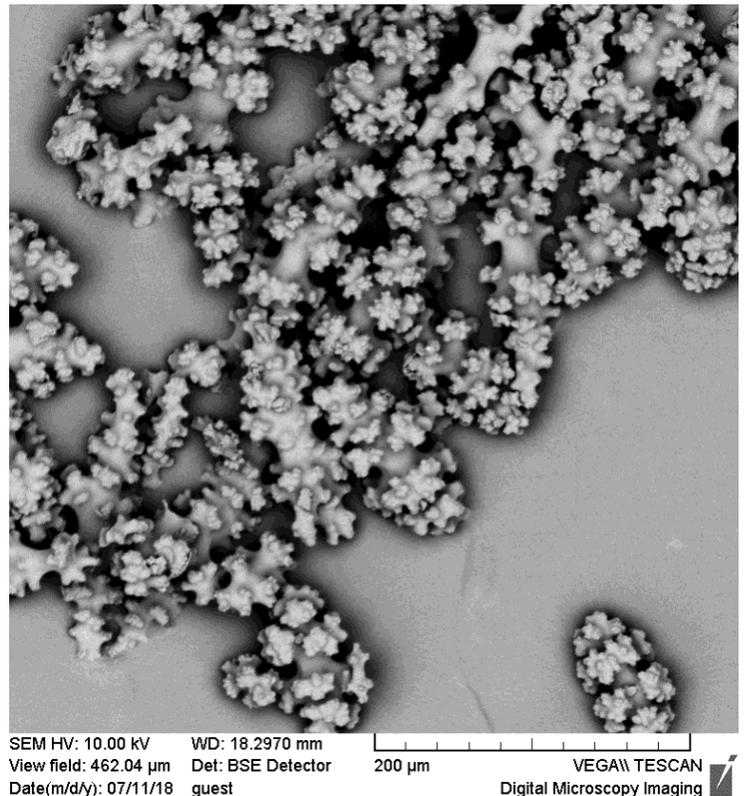


Fig. 2. Scanning electron micrograph showing coenenchymal sclerites for *C. marki*. Photograph taken by R. Aitchison.