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If You Plant It, They Will Come: Rapid Recruitment of Habitat-Dependent Marine Invertebrates to Transplanted Fragments of an Endangered Soft Coral Species

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In recent decades, the transplantation of corals has been a primary focus of restoration strategies in areas where coral populations have declined [1]. Although studies of hard coral (Hexacorallia: Scleractinia) transplantations are far more common, soft coral (Octocorallia: Alcyonacea) transplantation attempts are also promising [2]. Soft coral aggregations provide an important habitat for fish and invertebrates in both temperate and tropical marine environments [3,4], and restoration of these habitats is important for maintaining regional biodiversity.

Port Stephens, a tidal estuary in northern New South Wales (NSW), Australia, is home to a diverse assemblage of filter-feeders, including the threatened soft coral *Dendronephthya australis*. This soft coral has rapidly declined in the last 10 years [5,6], and is now listed as Endangered in NSW [7]. *Dendronephthya australis* aggregations support unique faunal assemblages that include juveniles of the fishery—important pink snapper (*Chrysophrys auratus*) and the Endangered White's seahorse (*Hippocampus whitei*) [3,8].

To assist the recovery of *D. australis*, we are trialling laboratory rearing of cuttings (nubbins) with subsequent transplantation into suitable habitats. In the first trial, we recorded rapid colonisation of almost half (22) of the 48 nubbins by invertebrates. Within 24 h, two sponge decorator crabs *Hyastenus elatus* (Figure 1B) had colonised fragments. After 13 d, a species of ovulid (Ovulidae: Gastropda) (*Globovula cavanaghi*) was found feeding on a nubbin. Two other species of ovulid (shown in Figure 1A,D), the trochid gastropod *Astele scitula* (Figure 1C), and the heterobranch sea slug *Dermatobranchus* sp. (Figure 1D) were also found on nubbins within six weeks of deployment. These species are known to display a preference for soft coral habitats [9,10]. These preliminary results suggest great potential for *D. australis* transplantation programs to have positive impacts on biodiversity within the Port Stephens estuary.

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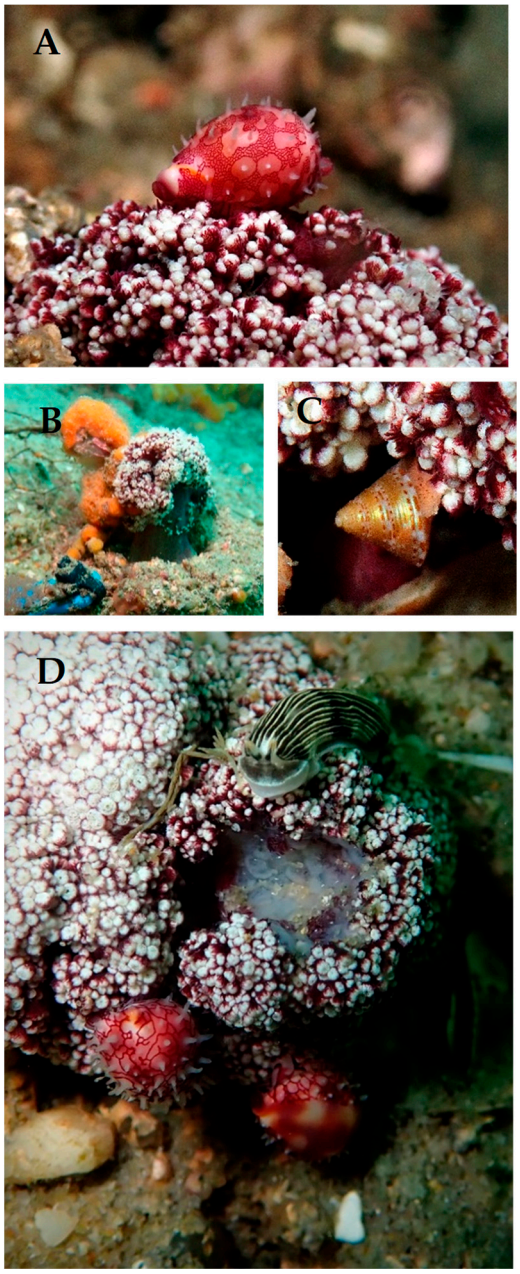

Figure 1. Example of species recruiting to transplanted nubbins of *D. australis*. (**A**): *Diminovula culmen*; (**B**): *Hyastenus elatus*; (**C**): *Astele scitula*; (**D**)*: Dermatobranchus* sp., *Testudovolva nebula*.

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