



Title: “Intertidal companions”

Description: Snakeskin chiton (*Sypharochiton pellerserpentis*) and anemones, Marlborough Sounds

Photographer’s name: Noelle Bennett

Where and when: Hakahaka Bay, Port Underwood. March 2021

Sustainability: This photograph is one of seven of chitons that you will find in the *Ecosystems Photography* galleries. Check them all out to read about different aspects of their lives, conservation challenges and ecological significance.

Alongside the chiton in this photograph are several anemones. Sea anemones are related to corals and jellyfish. Most people encounter anemones in rock pools with their tentacles extended and waving around to trap prey. Their tentacles are armed with cnidocytes (stinging cells). In this photo the tentacles are withdrawn while they wait for the tide to come flooding in again. It is this constant wetting and drying that makes survival and reproduction difficult on the intertidal zone.

In many anemone species, added colour and additional nourishment comes from a symbiotic relationship with single-celled dinoflagellates, zooxanthellae or with green algae that live within the anemone cells. Ecology is fundamentally about the science of the inter relationships and effects of species on one another and with the physical environment. “Symbiosis” is the closest form of connection between species where two different species literally live together. Often those are beneficial partnerships called “mutualisms” – in this case both the anemone and the single-celled “flatmates” give each other some “rent” – the anemone gets nutrients, the algae shelter. Other forms of ecological interaction are one-way benefit deals – e.g. a hermit crab takes over the shells of molluscs for a home (“Commensalism”). And sometimes the interactions are win:lose contests like “competition” and “predation”. The critters in the intertidal are often competing for space, especially a crevice to avoid desiccation or to allow them to hang on when waves are pounding. And oystercatchers, crabs and fish are on the prowl to eat them.

The ecological connections between species bring both danger and resilience – ecosystems can keep functioning when one species drops out. But if a threat affects one species, it can also trigger a cascade of impacts on the other species that depend on it – a type of ecological domino effect. Smart sustainability management uses a whole ecosystem perspective to keep life flowing, while still taking care to maintain ecological community diversity and ensure the survival of individual species.

Natural history photography often singles out a single species and even deliberately composes shots that de-emphasise the other species living around the subject. Perhaps we should take more pictures of species assemblages to emphasise the way that all life is connected?

Photographer's notes: Chiton are much harder to photograph than you would give them credit for when you first find them. Generally speaking, the only time that they can be found is at low tide with springs giving an even better chance to find them. Snakeskin chiton are a little more forgiving to photograph than green chiton for the reasons mentioned above but at around 30mm, they are still small and that in itself presents challenges. And they may still decide not to pose for you choosing instead to slide off to the darker side of their rock. And that's without taking into account the light levels and the fact that the chiton may well be wet which adds a whole extra dimension into the equation. But with a bit of patience you can get a beautiful image in a sort of understated way.

Photo specs: This image was focus-stacked using 50 images taken at two unit increments to ensure the whole of the chiton was in sharp focus.

Technical specs: The image was taken using a Panasonic DC-G9 camera and a Panasonic Leica DG Macro-Elmarit 45mm f/2.8 macro lens. Exposure details - 1/200 sec at f5 with an ISO 200 and a focal length of 45mm (90mm full frame equivalent)

Digital specs: 7706 x 5517 pixels (42.52MP) @ 300dpi

Key words: chiton, molluscs, snakeskin chiton, Papatua, tidal zone, Marlborough Sounds, New Zealand, intertidal zone, rocky shores, mudflats, Sypharochiton pelliserpentis, Noelle Bennett, Ecosystems Photography, conservation, sustainability

Price: \$200 (incl. GST) for use of the digital image. Visit www.ecosystemsp photography/sales for details & to order, or to get a quote if you would like a high-quality print.

Donation: The price includes a \$100 donation to a sustainability organisation or project of your choice, or otherwise to *iNaturalist NZ – Mātaki Taiao* – <https://inaturalist.nz>.

We recommend that the donation goes to *iNaturalist NZ* because they are supporting a wide variety of community-led biodiversity monitoring programmes throughout New Zealand, including for the intertidal habitats featured in this series of photographs. *iNaturalist* receives species records from citizen scientists, maps the data, and shares the information so that it can be used by scientists, policy makers, and the public. They invite everyone to submit photographs and will find an expert to help by identify the plants and animals in the photographs.

iNaturalist NZ need funds to maintain a database for monitoring long term trends in biodiversity in places like the intertidal where the chitons pictured here were found.

Image ref: NB#031 (please use this reference in all orders and correspondence).

Noelle Bennett
5 December 2021