



Title: "Green chiton - brown morph"

Description: Green chiton (*Chiton glaucus*), Marlborough Sounds

Photographer's name: Noelle Bennett

Where and when: Shelley Beach, Picton, April 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.

Chiton are ancient organisms, thought to have originated about half a billion years ago. They are marine molluscs of varying size which belong to the class Polyplacophora. They have survived climate cataclysms, mass extinctions and even outlasted the dinosaurs! There are about 600 chiton species worldwide and we have 56 of them in New Zealand - so just short of 10% of the world population.

Chiton are oval in shape, with a shell that is split into eight superimposed plates that gives them flexibility. They can curl into a little ball for protection although mostly they can be found clinging onto rocks where their metal teeth scratch the surface clean of algae and bacteria. A few species attach themselves to algae or live in holes in the holdfasts of seaweed. One species in New Zealand can be found buried in the sand.

The majority of chiton live near or below the low water mark, although a few species do occur between tidemarks. Some of the commonest forms in New Zealand have adapted themselves to this 'intertidal' habitat. Life there can be tough – the species need to withstand repeated wetting with salt water and desiccating sun when the tide is out, not to mention the pounding of waves that make finding shelter in crevices a priority. The rapid shift from marine to terrestrial conditions makes for a highly diverse and fascinating biodiversity arranged in bands of species between the subtidal up to the highest splash zone above the intertidal – this 'ecological zonation' is a photographers' dream.

This photograph is of a 'Green Chiton'. Despite their name, green chiton can, in fact, be pale blue, buff or even brown (as this one is) as well as dark green. The duller colours are more likely to be found in muddier areas such as estuaries. They are found throughout New Zealand and have even been found in Tasmania, the theory being that they were spread by shipping activity between New Zealand and Australia.

Photographer's notes: Chiton are much harder to photograph than you would give them credit for when you first find them. Generally, they are most likely to be found at low tide with springs. Green chiton are small, reaching a maximum of just 35mm. They don't like the light and may decide not to pose for you. Low light levels and being wet adds an extra dimension of difficulty in getting the exposure right. All that considered, photographing them becomes quite challenging. 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 - 1/160 sec at f5.8 with an ISO 200 and a focal length of 45mm (90mm full frame equivalent)

Digital specs: 7155 x 5245 pixels (37.53MP) @ 300dpi

Key words: chiton, molluscs, *Chiton glaucus*, Papatua, endemic, tidal zone, Marlborough Sounds, New Zealand, rocky shores, mudflats, green chiton, Noelle Bennett, Ecosystems Photography, conservation, sustainability

Price: \$200 (incl. GST) for use of the digital image. Visit www.ecosystemsphotography/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#002 (please use this reference in all orders and correspondence).

Noelle Bennett
5 December 2021