



**Title:** "Green chiton"

**Description:** Green chiton (*chiton glaucus*), 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.

Found in intertidal or subtidal zones around the coast, the green chiton seems able to tolerate a fairly broad range of environments. Although generally associated with rocky or stony substrate, the green chiton, unlike many other chiton, are also able to tolerate muddy substrates and can even cope with a substrate that is semi polluted. They do not like low salinity, however. They hide under rocks and in crevices during the day, only venturing out on the open rock to feed at night when the tide is high. If they are exposed to light during the day, they can - and often do - move more briskly than is helpful when you're trying to take photos of them as they head back to the dark side of their rock!

New Zealand's long and thin shape, and profusion of islands (over 600 of them) creates a tremendously long and diverse intertidal habitat zone. Chitons, like other Molluscs, are known to play important ecological roles in the different aquatic and terrestrial ecosystems of the world. It has long been recognised that the presence of some species signals poor water quality. Ecologists therefore use them as "indicator species", the ones that raise warning flags about environmental health, or whose gradual disappearance shows that efforts to restore and ecosystem are beginning to work.

Chiton have already survived so many catastrophic events but one has to wonder whether they can continue to survive. They are potentially threatened by climate change and ocean warming. Several people report that they reckon that the biodiversity in the intertidal zone is now much reduced compared to when they were younger. The dilemma is that there are very few repeated monitoring sites to provide scientific evidence of such declines, and it is usually harder to mobilise conservation action without such reliable information.

Lack of systematic and widespread monitoring makes this large and ecologically fascinating ecosystem vulnerable to large change before we would even know about it. This information gap is gradually being filled in with various "citizen science" projects in which the general public are providing the surveillance and counting what they see.

Citizen Science is not just an opportunity to gather more scientific data – it also builds environmental awareness amongst participants and helps people learn about the plants and animals. It also shows people first hand that

science is fun and useful, conducted out in the field, and not at all about stuffy nerds in white coats locked away in a laboratory somewhere!

**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. Green chiton are small, maybe reaching a maximum size of 35mm. Add to that the fact that they don't like the light and may decide not to pose for you and suddenly taking a photo of them becomes quite challenging. 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 - 1/160 sec at f5.8 with an ISO 200 and a focal length of 45mm (90mm full frame equivalent)

**Digital specs:** 7397 x 5102 pixels (37.74MP) @ 300dpi

**Key words:** chiton, molluscs, Chiton glaucus, tidal zone, Marlborough Sounds, New Zealand, rocky shores, green chiton, ocean warming, indicator species, citizen science, Noelle Bennett, Ecosystems Photography, conservation, sustainability

**Price:** \$200 (incl. GST) for use of the digital image. Visit [www.ecosystemsphotography.com/sales](http://www.ecosystemsphotography.com/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#004 (please use this reference in all orders and correspondence).

**Noelle Bennett**

5 December 2021