



**Title:** "Goose Step"

**Description:** Canada Geese pair, Tūmai.

**Photographer:** Henrik Moller

**Where, when:** Hakapupu (Pleasant River estuary), September 2021

**Sustainability?** These Canada Geese were milling about together on the Hakapupu estuary sands well away from breeding pairs standing closer to nesting cover or paired off and loafing as they keep company. These are probably adolescents that are strutting their stuff and selecting mates. Canada Geese first start breeding at 2 or 3 years, and then breed most years for the rest of their lives. Maximum lifespan is probably about 30 years. This is what ecologists call an "iteroparous" life cycle – one of continuous production of a small number of young each time they breed. The opposite is a "semelparous" life cycle, like that of a salmon, where the parents breed once and produce a lot of offspring in the one attempt and die spent soon after.

The geometric maths of reproductive success suggests that there is a premium on breeding as early as possible. But if the geese try to reproduce too early, they risk exhausting themselves and compromising their life-time production of offspring and therefore have reduced "life-time fitness". Age-at-first-breeding therefore becomes finely tuned by evolution for iteroparous species like the geese.

Since reproductive success is by definition a long-term affair, it's important to find the best mate possible. Canada geese are known to display "assortative mating" – the larger geese choose larger mates, and the smaller ones either prefer or just end up having smaller mates. In many bird species it's the female that gets the main say on which mate to choose – that makes sense because reproduction is nearly always more costly and risky for females than for males ... so nature lets her pick. Who is she most attracted by in the parade in this picture?

Bird watching is a common entre to becoming a nature lover. It's no different for photographers. Seeing and capturing their behaviour is what excites and stirs the emotional response of the viewer. Having a bit more background knowledge and awareness of what's going on for the birds at the time of the photograph adds extra pleasure and wonderment about the design and patterns of nature. Hence this *Ecosystems Photography* project attempts to couple snip-bits of ecology and

behavioural ecology with lively images to increase enjoyment and deepen commitment to sustaining nature.

I like to think these geese as like teenagers at a gig, doing their moves, and weighing their chances!

**Photo notes:** Exposure for 1/600s, 600 mm focal length, f/6.3, ISO-640.

**Digital specs:** 5,698 x 2,198 pixels (12.5 MP).

**Key words:** Canada Geese, *Branta canadensis*, bird, introduced species, naturalised, pest, Henrik Moller, Aotearoa, New Zealand, Sustainability.

**Price:** \$120 (incl. GST) for use of the digital image.

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**Donation:** The price includes a \$100 donation to a sustainability organisation or project of your choice, or otherwise for the *East Otago Catchment Group* <https://www.facebook.com/groups/1547310312019600>.

We recommend that the donation goes to *East Otago Catchment Group* because they work in a community-led, collaborative bottom-up way to improve land and water care. Catchment groups draw town and country people together and find practical solutions based on local knowledge and energy.

**Image Ref:** HM#021 (Please refer to this reference in orders and correspondence).

**Henrik Moller**  
2 December 2012.