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Forum

A Neolithic rock engraving apparently showing a Great Auk being captured

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We evaluate whether a Neolithic engraved rock image at the Alta archaeological site in Finnmark, Norway – of a bird being held by a person – represents a Great Auk *Pinguinus impennis*. There are several thousand engraved animal figures at Alta, created between 5000 and 2000 years ago, in various hunting panoramas. Of these images, 24 represent aquatic birds, including four others that might also be Great Auks. Based on the size of the bird relative to the person holding it, the size and shape of the beak, wings and webbed feet, and comparisons with some other bird images at Alta, we conclude that it is likely that this one does represent a Great Auk.

ABSTRAKT

Vi vurderer om et gravert steinbilde fra yngre steinalder — ved Alta arkeologiske funnsted i Finnmark, Norge, av en fugl som holdes av en person, representerer en alkefugl *Pinguinus impennis*. Det er flere tusen graverte dyremotiver ved Alta, skapt for mellom 5000 og 2000 år siden, i ulike jaktpanoramaer. Av disse bildene representerer 24 vannlevende fugler, inkludert 4 andre som også kan være alkefugler. Basert på størrelsen på fuglen i forhold til personen som holder den, størrelsen og formen på nebbet, vingene og store svømmeføtter, og sammenligninger med noen av andre fuglebilder i Alta, konkluderer vi med at det er sannsynlig at denne representerer en alkefugl.

Keywords: Alta World Heritage Site, Great Auk, *Pinguinis impennis*, rock art.

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The Neolithic archaeological site at Alta in northern Norway – a World Heritage site with the largest concentration of hunter-gatherer's rock art in Northern Europe — contains numerous rock engravings of humans hunting mammals, birds and fishes (Gjerde 2019, Tansem & Storemyr 2021). The Alta site has several thousand figures chiselled into the hard sandstone in what are often narrative panels on the bedrock along the shore of the Alta Fjord. Created between 5000 and 2000 years ago, the figures and motifs are mainly associated with hunting and comprise 505 human figures (some with bows, arrows or spears), 163 boats, 1364 reindeer, 209 elk, 122 bears, 49 whales or fish, 39 canines (dogs, wolves or foxes) and 24 birds (Tansem 2022). Among the bird images is a particularly striking one that appears to be a Great Auk *Pinguinus impennis* being captured by a human (Fig. 1) and four others that also look like Great Auks.

Extinct since around 1844, the Great Auk was a large (3560 kg, 80 cm tall) flightless member of the auk family (Alcidae) whose only known breeding colonies (Fig. 2) were located at eight sites in the Boreal and Low Arctic waters of the North Atlantic (Grieve 1885, Nettleship & Evans 1985, Fuller 1999, Montgomerie & Birkhead 2024). Being flightless, the Great Auk was easy to capture at its breeding colonies where it was killed for its extremely palatable flesh, its feathers and, from 1800, as scientific specimens (Birkhead 2025). In this note we focus on the single Alta image of a bird being captured (Fig. 1) and assess the likelihood that it is a Great Auk, as suggested by Rose (2018, 2025).

Engraved rock images at many sites around the world can be difficult to see today because they are only shallowly carved and often weathered. To make the images clearer, images at some sites were painted (often with red, sometimes white, paint), starting in the 1940s (e.g. <https://www.tanumworldheritage.se/annat-besoksmal/why-are-the-carvings-red/?lang=en>). Typically, engravings were painted by archaeologists and although there is no photograph of the unpainted engraving shown in Figure 1, it is clear that the painting of the bird itself accurately reflects the original engraving (K. Tansem, pers. comm.).

Four features point to the bird in Figure 1 most likely being a Great Auk: (i) the bird's body size relative to the human figure, (ii) the large, square-ended beak, (iii) the large, webbed feet, and (iv) the relatively small, flipper-like, outstretched wings.

- i Body size: the Great Auk was a large, goose-sized bird, about half as tall as a human, as shown in Figure 1.
- ii Beak: the beak of the Great Auk was distinctive: large, laterally compressed and 'square-ended' (Fig. 2 inset). The human in Figure 1 is holding the



Figure 1. Neolithic image at Hjemmeluft, Alta, northern Norway, of a human holding a bird that looks like a Great Auk (dimensions 22 × 24 cm). The engraving is dated at 6000–5000 years before present (Tansem & Storemyr 2021). The original rock engraving (Panel Bergbukten 2 at Hjemmeluft) was coloured by the addition of red paint, in the 1970s, to enhance the image (photo: K. Tansem).

bird at arm's length by the top of its neck, suggesting that it is being held in such a way that it cannot bite its captor. The Great Auk was well known for

its powerful bite (Fabricius 1808, translated from the Danish by Meldgaard 1988: appendix 2, p. 177; Audubon 1838: 316; Faber 1827: 682, translated

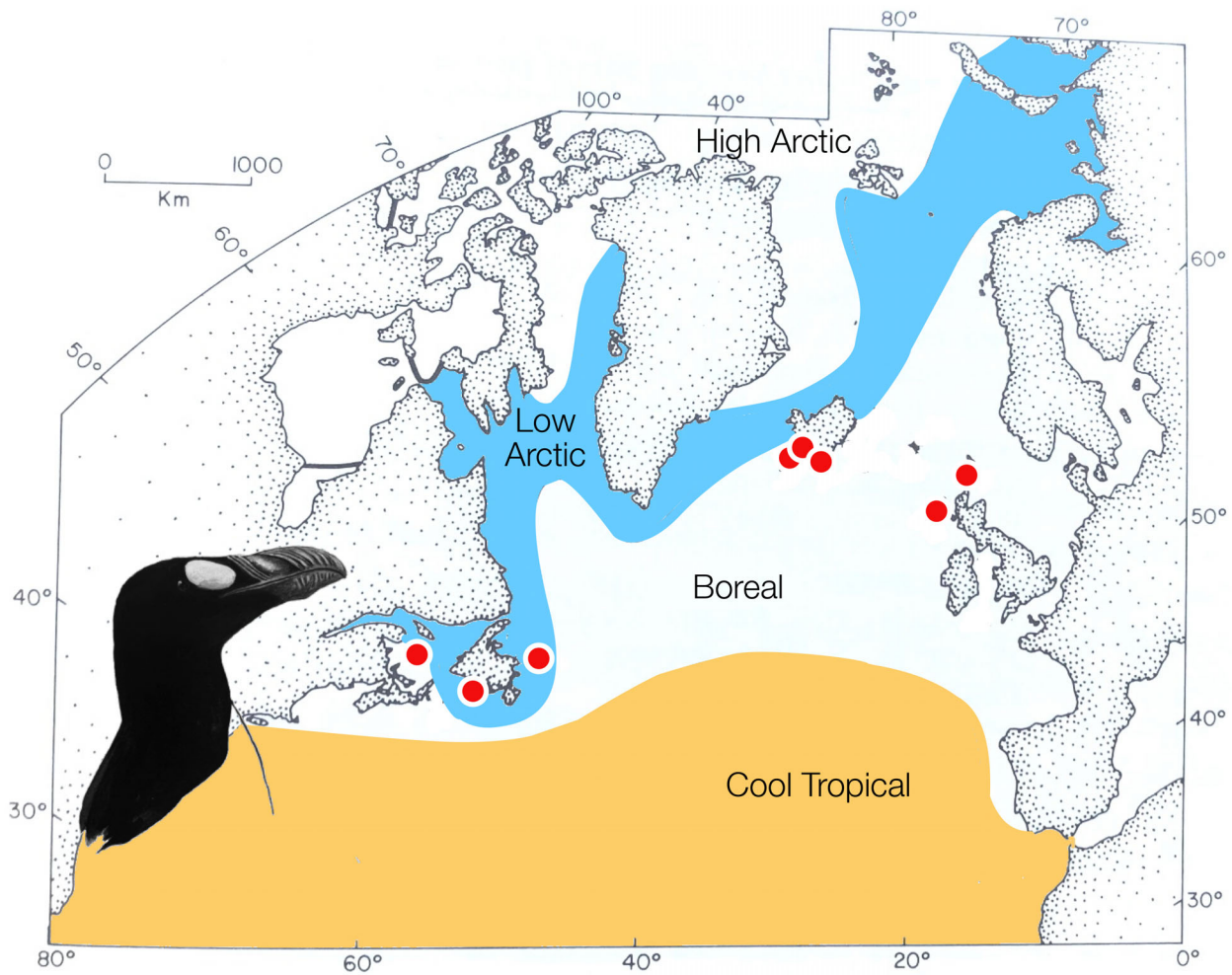


Figure 2. Known locations of Great Auk breeding colonies (red dots) and the four ocean temperature zones in the North Atlantic (modified from fig. 4 in Nettleship & Evans 1985, and fig. 1 in Montevecchi & Kirk 2020).

from the German by Schulze-Hagen & Birkhead 2023). None of the other images at Alta shows birds interacting physically with people or being held at arm's length, probably because none of those other birds (geese, ducks, a wader – with the exception of a possible Great Cormorant *Phalacrocorax carbo*, see Fig. 3) could inflict such damage with their beak. It is also worth noting that the beaks of other bird images at Alta are not all generic, suggesting that the artists were illustrating distinct species or types of birds (Fig. 3).

- iii Large, webbed feet: the Great Auk had large, strong, webbed feet positioned far back on the bird's body. Both Fabricius (1780, cited in Meldgaard 1988) and Naumann (1844) made a detailed examination of recently killed Great Auks and commented on the size and distinctive nature of

their feet (length of middle toe, 70–107 mm (Fuller 1999; J. F. Naumann, cited in Schulze-Hagen & Birkhead 2023)). Because most aquatic birds have large, webbed feet, this feature is hardly definitive in identifying the bird in Figure 1 as a Great Auk. However, none of the 20 or so other images of web-footed birds at Alta – ducks, geese and possibly a cormorant – has such obviously webbed feet (Fig. 3). The configuration of the feet in Fig. 1 seems to have been made to appear large and webbed. With the exception of the four other possible Great Auks, the other birds engraved at the Alta site (Fig. 3) are clearly different from the presumed Great Auks. This suggests to us that the artists were attempting to portray different species, presumably ones that were important to them as food.

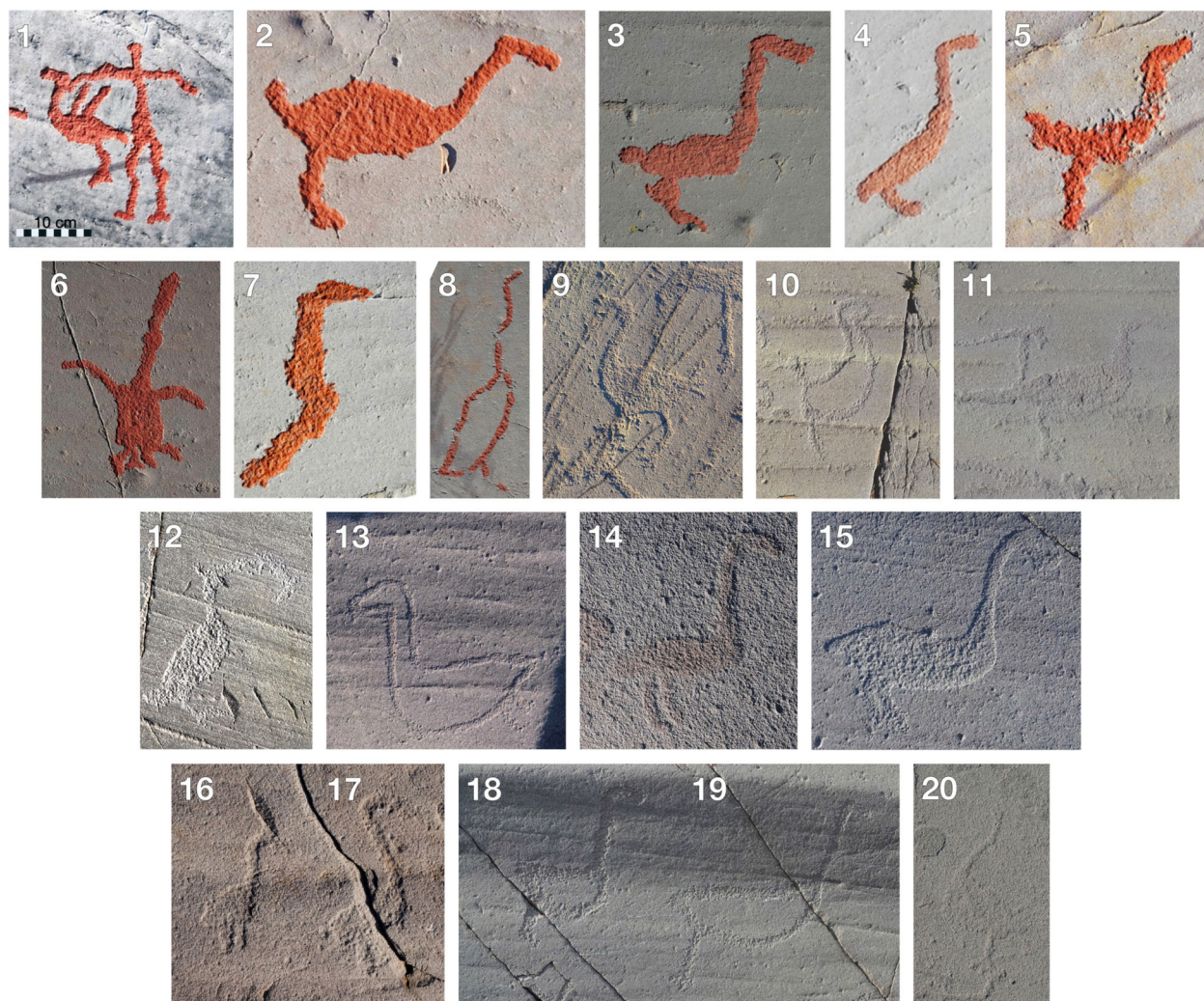


Figure 3. Some of the bird engravings at the Alta site. The birds in panels 2, 3, 4 and 5 may also be Great Auks (images, which are not to scale, are from the Alta photo-archive: <https://altamuseum.fotoware.cloud/fotoweb/archives/5003-Photoarchive/>).

iv Outstretched, tiny, flipper-like wings: the Great Auk was flightless and its wings were disproportionately small (Livezey 1988, Montgomerie & Birkhead 2024). The engraving in Figure 1 is consistent with descriptions by those who chased and captured Great Auks at their breeding sites, where the birds were often described as walking or running holding their wings away from their body (Pálsson 2024, citing John Wolley's interviews with Icelandic Great Auk hunters). This is also how Guillemots (murre) *Uria* spp. and Razorbills *Alca torda* – the Great Auk's closest relatives (Smith & Clarke 2015) – hold their wings when captured for ringing (banding) and being held by the neck (pers. obs).

Also relevant is the presence of Great Auk bones in several archaeological sites in the same general area of northern Norway (Hufthammer & Hufthammer 2023). There are over 50 archaeological sites where Great Auk bones have been found along the Norwegian coast, dating mainly to 6000–2000 years BP (Hufthammer & Hufthammer 2023) – a span of dates that overlap with the dating of the Alta images (Tansem & Storemyr 2021). The nearest archaeological sites to Alta with Great Auk bones are c. 150 km to the northeast (Fig. 4).

Figure 1 also suggests that the bird may have been captured on land – and therefore possibly at a breeding site – rather than on the water where, in the 18th

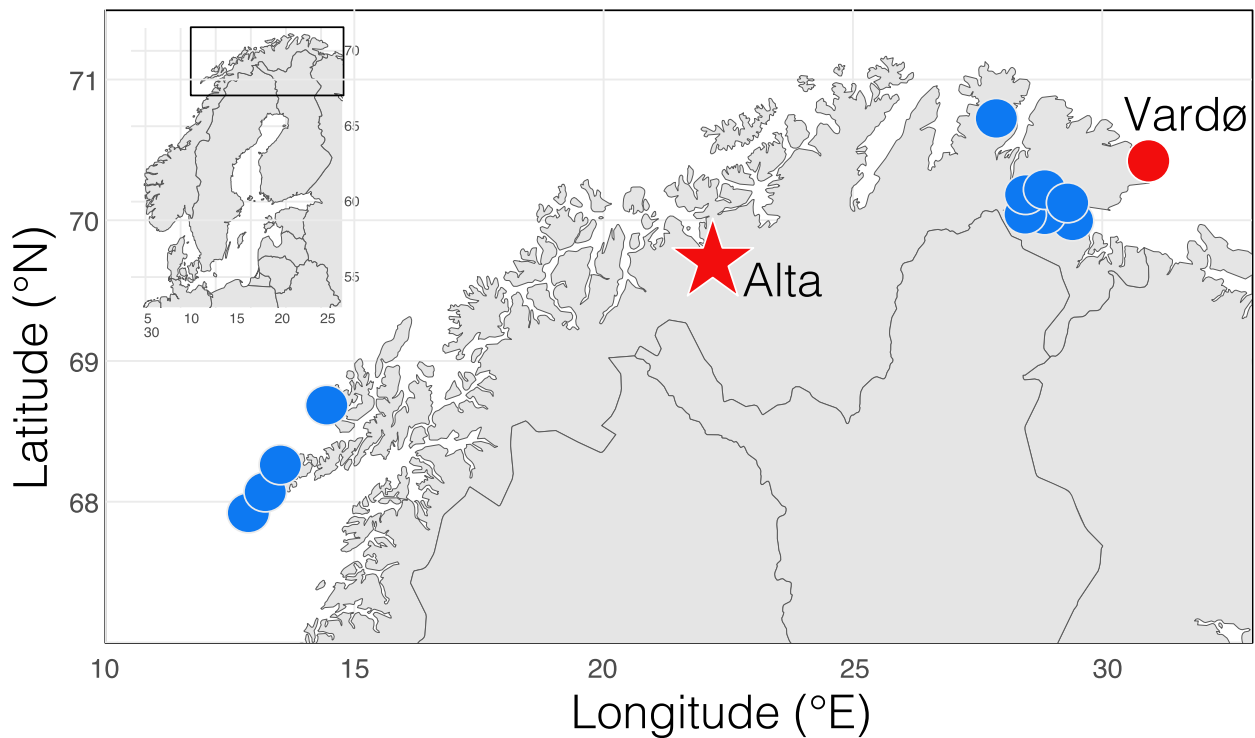


Figure 4. Sites in northern Norway mentioned in the text, showing Alta and Vardø. Blue dots indicate the 16 northernmost archaeological sites in Norway where Great Auk bones have been discovered (see also Hufthammer & Hufthammer 2023).

century (and probably long before), Great Auks were often captured from a kayak using a dart and an inflated bladder (Egede 1741).

The strong likelihood that the Great Auk depicted in the Alta engraving might have been seized on land raises the question of whether the Neolithic people of Alta captured Great Auks at their breeding colonies. Despite the abundance of archaeological Great Auk material, there are no known Great Auk breeding sites in this northern region of Norway. Hufthammer and Hufthammer (2023) state that no ‘neonatal’ (by which they appear to mean chick or fledgling) Great Auk bones have been found in these archaeological sites and infer from this that none of the archaeological sites along the entire coast of Norway was near breeding colonies. However, apart from the Great Auk colony on Funk Island, Newfoundland, there are no records of Great Auk chick bones anywhere else, and even the very few examples that were found on Funk Island (all but one in the 1880s: Lucas 1890) are now either lost or destroyed (see Birkhead 2025: 124). The fact that few, if any, eggs were allowed to hatch during the main period of exploitation means that the absence of chick bones at a site does not mean that there were no breeding colonies nearby. Given that the eight known Great Auk breeding colonies were all within or very close to the Boreal

water zone (Fig. 2), and that the Alta site also falls just within this zone, it is possible that 2000–5000 years ago Great Auks did breed in this region of northern Norway. There is an unverified account of four Great Auks sighted in 1848 at Vardø, in Varanger Fjord, Norway (Fig. 4), 200 km northeast of the Alta site (Fuller 1999: 408). There are good reasons to be sceptical of this account (Birkhead 2025), but the archaeological evidence and the engraving at the Alta site do lend it some credence.

In conclusion, while we cannot be certain that any of the neolithic images that look like Great Auks (Figs 1 & 3) really are that species, the available evidence seems, on balance, to indicate that the Alta image of the bird being held by the neck does depict a Great Auk.

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AUTHOR CONTRIBUTIONS

Tim R. Birkhead: Conceptualization; methodology; writing – original draft; writing – review and editing. **Robert Montgomerie:** Conceptualization; methodology; writing – original draft; writing – review and editing.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ETHICAL NOTE

None.

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DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no datasets were generated or analysed during the current study.

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