

- 1 Evidence of tool use in a seabird?
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- 5 01/01/2020

Fayet, Hansen and Biro (2019) provide two observations of Atlantic puffins, *Fratercula arctica*, performing self-directed actions while holding a stick in their beaks. The authors interpret this as evidence of tool use as they suggest that the stick was manipulated towards the birds' plumage with the specific goal of scratching. While these are certainly interesting observations, the authors do not address a simple and likely explanation of the self-directed actions; that they occurred by chance.

Instead of tool use, the observations can be explained by the puffins engaging in common self-directed behaviour, such as preening, whilst incidentally holding a stick in their beaks. If the stick did not impede self-directed behaviour, or produced similar sensory results to it, then the birds would have no need to drop the stick while preening. Under this explanation, the authors conclusions about seabird cognition are premature. And this alternative explanation is both plausible and likely. The explanation is plausible as birds often pick up sticks, even when not building nests (Heinrich & Smolker, 1998; Sazima, 2008), and they often engage in self-directed preening. The explanation is likely as it would be surprising if the puffins did not occasionally engage in both behaviors simultaneously across the many years of observations in both locations. In fact, that Fayet, Hansen and Biro only reported two instances of the behavior across seven years by could even be taken as evidence *against* the hypothesis that puffins use stick tools for body care. The authors may have the data to probe this claim, specifically how frequently the puffins picked up sticks without then performing self-directed actions or nest building. If the only instances of stick pick-ups were followed by scratching then the data become more convincing evidence of tool use, but this analysis is necessary to support the authors' conclusions.

Furthermore, Fayet, Hansen and Biro (2019) implicitly present a strong argument as to why we should be skeptical about the sticks being used as tools to scratch: Many birds can already reach

30 most of their bodies with their beaks. However, instead of this leading to uncertainty about
31 whether the observed behaviour was really tool use, Fayet, Hansen and Biro used it to make
32 the valid suggestion that this is why such tool use has not been observed in other wild birds.
33 But this argument should lead to great uncertainty about whether their observations in puffins
34 did really represent tool use, rather than the co-occurrence of two common behaviors.

35 In summary, Fayet, Hansen and Biro (2019) present two interesting observations of puffins
36 holding sticks and preening, which they interpret as tool use. However, the conclusion that this
37 is tool use is premature as the behavior can instead be explained by the puffins simply of
38 engaging in common self-directed behaviour whilst co-incidentally holding a stick.

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References

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