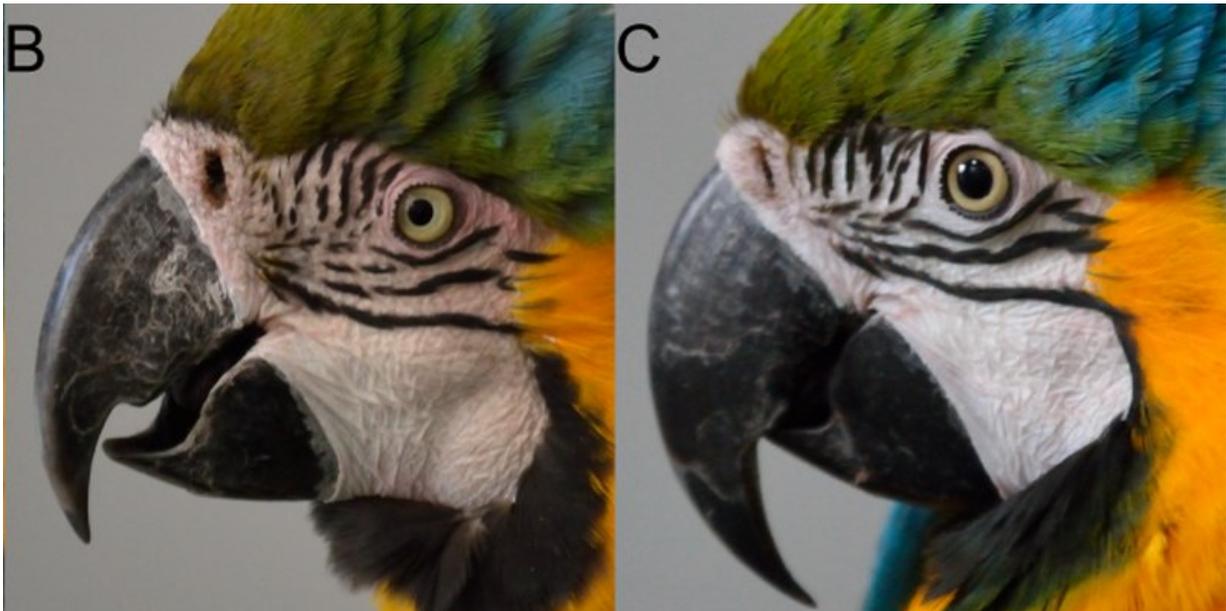


Macaws may communicate visually with blushing, ruffled feathers

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'Blushing' macaw (left) compared to a 'non-blushing' macaw (right). Credit: A. Beraud

Parrots—highly intelligent and highly verbal—may also ruffle their head feathers and blush to communicate visually, according to a new study published August 22 in the open-access journal *PLOS ONE* by Aline Bertin of the INRA Centre Val de Loire, France and colleagues. The study extends the understanding of the complex social lives of these remarkable birds.

The authors studied five hand-reared captive blue-and-yellow macaws (*Ara ararauna*) interacting with one another and with their human caretakers. They assessed the feather position (ruffled or sleeked) on the crown, nape, and cheek, as well as the presence or absence of blushing on the bare skin of the cheek. They found that feather ruffling was more common when the birds were not in motion, such as during social interactions and resting periods. Crown feather ruffling and blushing were both more common when the human caretaker was actively interacting with the parrot by talking and maintaining eye contact than when the keeper was in the room but ignoring and turning their backs to the bird. Together, these results suggest that head feather ruffling is associated with states of lower arousal and positive social interactions, the authors concluded.

"How birds use facial displays and whether they communicate their inner subjective feelings is a question that is crucial to deepening our understanding of bird sentience," say Bertin et al. "Although caution must be exercised when interpreting these data due to the small sample size, we argue that crown ruffling and skin color variation may provide facial indicators of [birds'](#) inner subjective feelings. On a practical level, parrots are popular companion animals, with millions of parrots being kept as pets, and understanding visual communication in [parrots](#) may help to assess their well-being in captive conditions."

Bertin summarizes: "Blushing may not be a characteristic unique to humans: the featherless cheek of the blue-and-yellow macaw parrot reveals rapid skin color changes in situations associated with emotion. The macaw's particularly complex face may enable communication of emotion via color and [feather](#) displays."

More information: Bertin A, Beraud A, Lansade L, Blache M-C, Diot A, Mulot B, et al. (2018) Facial display and blushing: Means of visual communication in blue-and-yellow macaws (*Ara Ararauna*)? *PLoS ONE*

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