

Wits and Rizz

Birds' Capacity for Intelligence and Emotions

By Avery Mizrahi

Is this painting by Picasso or Monet? Turns out, it's so easy to tell, even a bird can do it. In a 1995 study, pigeons were trained to discriminate between these artists (Watanabe et al., 1995). Even when they were presented paintings they had never seen before, they were able not only to tell the difference, but group paintings by Impressionist (Monet, Cezanne, or Renoir) or Cubist (Picasso, Braque, or Matisse). Maybe the phrase "bird brain" shouldn't have the meaning we've given it.

In the beginning, scientists chose to study the brains of birds through the lens of Behaviorism. Non-physical concepts like thoughts and beliefs were discarded. Instead, they explained bird behavior through how birds reacted to their environment. In the 1950s, the Cognitive Revolution occurred. Institutions like Harvard led the way in considering how memory and mental states affect behavior (Pinker, 2011). Scientists realized that some animals, from primates to dolphins to birds, exhibit **Complex Cognition**. In other words, they are able to store information and learn new information in complex ways (Striedter & Iwaniuk, 2025).



A Cliff Swallow peeks out of its intricate nest. Photo by Avery Mizrahi.

While birds do not have a folded outer layer of the brain like humans do, some species have especially incredible hippocampi: the centers for memory. Hummingbirds have the largest hippocampus relative to their brain size. They are able to remember which flowers they have visited, which had the optimal nectar, and when the flower will replenish itself. Additionally, they have an incredible sense of passing time, and when scientists replaced a feeder every ten minutes, the hummingbirds returned after about ten minutes to check (González-Gómez et al., 2011).



Pictured is a Turkey Vulture, a clever species who can recognize humans. Photo by Avery Mizrahi at Bolsa Chica Wetlands.

Meanwhile, most birds in the crow family, aka corvids, can remember faces for long periods of time. Crows at the University of Washington remembered the faces of the researchers who had captured them for 10 years and exhibited aggressive behavior like diving and swarming toward them (2016). In fact, corvids are considered one of the most intelligent avian species. Some of them are well known for their tool use, an important element in complex cognition. New Caledonian Crows break off the end of twigs or cut stiff leaves to search tree branches for insects. They even carry these tools between different feeding locations. Laboratory experiments show that crows can learn to drop objects into water to raise

the water level, and therefore raise the floating food closer to them. Crows learn to choose objects that are solid and sink, avoiding those that won't raise the water level (2014). Oftentimes, crows can even choose proper tools on the first try, indicating there may be a mental trial and error (Striedter & Iwaniuk, 2025).

The large brain of crows is not only associated with intelligence, but social bonding. Unlike mammals, **90% of all birds are monogamous** (Krug, 2023). Birds that pair for life or raise their hatchlings together have a larger relative brain size (Emery et al., 2007). That brings us to the age old question: can birds love? Scientists disagree about the answer, but what we do know is birds tend to show affection towards their partners in a multitude of ways. Beyond courtship displays and bringing gifts, many species partake in **allopreening**, or gently nibbling on each other's neck and head feathers. Mourning doves will press their beaks together, somewhat mimicking a kiss (Campbell, 2023). It is difficult to know the extent to which birds feel love, but we can see beautiful routines close to how we show our love as humans. Maybe it's unfair to believe we're the superior species. The more we learn about not only birds, but the animal world as a whole, it becomes abundantly clear they have more wits and rizz than we give them credit for.



Western Gulls, like the one above, mate for life, which can be up to 25 years. Photo by Avery Mizrahi.

[See the birds and behaviors in this article!](#)

☐ [Cliff Swallow](#)

- ☐ Turkey Vulture
- ☐ Western Gull
- ☐ Crows using tools
- ☐ Allopreening

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Citations

Campbell, V. (2023, February 16). How do birds “Fall in love”? A look at courtship displays. All About Birds. <https://www.allaboutbirds.org/news/how-do-birds-fall-in-love-a-look-at-courtship-displays/#>

Emery, N. J., Seed, A. M., von Bayern, A. M. P., & Clayton, N. S. (2007). Cognitive adaptations of social bonding in birds. Philosophical Transactions of the Royal Society B: Biological Sciences, 362(1480), 489–505. <https://doi.org/10.1098/rstb.2006.1991>

González-Gómez, P. L., Bozinovic, F., & Vásquez, R. A. (2011). Elements of episodic-like memory in free-living hummingbirds, energetic consequences. Animal Behaviour, 81(6), 1257–1262. <https://doi.org/10.1016/j.anbehav.2011.03.014>

Striedter, G., & Iwaniuk, A. (2025). Bird Brains and Behavior: A Synthesis. MIT Press.

Krug, A. (2023, January 25). Do birds have feelings?. Chirp Nature Center. <https://chirpforbirds.com/bird-brain/do-birds-have-feelings/>

The New York Times. (2014, April 11). How smart are crows? | sciencetake | The New York Times. YouTube. <https://www.youtube.com/watch?v=s2IBayVsbz8>

Pinker, S. (2011, October 13). The Cognitive Revolution. YouTube. <https://www.youtube.com/watch?v=AeoyzqmyWug>

UW Video. (2016, September 27). The Crow Whisperer. YouTube. <https://www.youtube.com/watch?v=MvTIAORb9us>

Watanabe, S., Sakamoto, J., & Wakita, M. (1995). Pigeons' discrimination of paintings by Monet and Picasso. *Journal of the Experimental Analysis of Behavior*, 63(2), 165–174.
<https://doi.org/10.1901/jeab.1995.63-165>