Speaking of psittacine research

by Monica Harrington

SCIENTIFIC NAME
Psittacus erithacus

TAXONOMY
PHYLUM: Chordata
CLASS: Aves
ORDER: Psittaciformes
FAMILY: Psittacidae

Physical description

The grey parrot (*Psittacus erithacus*), native to the Congo in Africa, is a medium-sized bird weighing 400 g and measuring 33 cm in length, with an average wingspan of 46–52 cm. The plumage is predominantly grey with a white scalloping pattern, and the tail feathers are red. The face features bare white patches framing pale yellow eyes, and the bill is black.

Grey parrots are primarily herbivorous, favoring fruit and nuts. They are social and roost in large, noisy groups. They are very vocal, producing a range of whistles, squawks, shrieks and screams, and are popular as companion animals, owing in part to their ability to mimic sounds including human speech.

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Research résumé

Grey parrots are used in research on learning and especially in language studies, which have found that parrots' cognition and communication abilities far exceed simple speech mimicry. Irene Pepperberg (Brandeis University, Waltham, MA) worked with perhaps the best-known grey parrot in research: 'Alex,' whose cognitive capacity was comparable to that of marine mammals, apes and 4- to 6-year-old children[1,2]. Alex was capable of rudimentary communication, including contextual and conceptual use of human speech. He could label more than 100 different objects, descriptors, quantities and actions and could combine these labels into phrases to identify, request, categorize and quantify items or actions. Alex also understood the concept of none or zero[3].

Research with other grey parrots has led to further appreciation of their cognitive and communicative facilities. They can copy a range of movements involving different body parts and associate each movement with its appropriate label, a form of social learning and imitation[4]. Despite their known ability to learn complex tasks by imitation, however, grey parrots that had received speech training refused to imitate the steps needed to acquire a desired food item and instead repeatedly requested the treat from their trainer, engaging in deliberate communication as a problem-solving strategy[5]. Grey parrots can cooperate to complete tasks as a team but, when given a choice between a solo task and a task that requires a partner, will sometimes choose to work alone[6]. They can also infer the presence or absence of hidden objects using indirect evidence[7], a skill previously seen only in great apes. Untrained parrots could determine which of two boxes contained an object after observing a trainer shake one of the boxes, even if the box shaken was the empty one. And at least one grey parrot, named 'Griffin,' seems to understand the notion of reciprocity. He was given a 'copycat' test with a human partner in which he had four choices: a treat for himself, a treat for his partner, a treat for each or no treat for either. Each time he made a choice, the human partner copied that choice. Griffin consistently chose treats for both himself and his partner, maximizing the total reward for both[8].

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