Section:
Science Agenda
Opinion and analysis from Scientific American's Board of Editors
Orcas and elephants are smart, social and way too large for captivity
Having finally joined the rest of the world in severely restricting medical testing on chimpanzees, the U.S. is currently relocating hundreds of government-managed chimps to sanctuaries. One reason for these changes is that the animals are not as essential to biomedical research as they used to be -- we have learned to use genetically engineered mice and cell cultures instead. For many people, an even more persuasive argument is that performing medical research on chimpanzees is inhumane because, like us, they are highly intelligent, emotional and self-aware.

As with chimps, the intelligence of orcas and elephants is undeniable. Boasting some of the most intricate brains around, all three animals have recognized themselves in mirrors, indicating that they, too, have a concept of self. All are cooperative problem solvers. Teams of orcas sometimes hunt by producing and directing waves at icebergs to knock seals and penguins into the water. Elephants are also adept toolmakers, fashioning switches with which to shoo flies and chewing bark into balls to plug small drinking holes, thereby preventing evaporation.

Chimps, killer whales and elephants are just as dependent on companionship as we are. A killer whale mother stays with most of her descendants throughout life, sometimes shepherding as many as four generations. Related matrilines, each of which has its own dialect, unite in pods, which merge into clans, which intermingle in large communities -- akin to tribes and nations.

Likewise, related elephant mothers and their offspring form tight-knit clans in which they share parenting duties and shield children from predators. When a clan member dies, elephants mourn -- there is no other word for it. At Kenya's Samburu National Reserve, zoologist Iain Douglas-Hamilton and his team witnessed elephants from various families tending to an ailing matriarch named Eleanor. Another matriarch used her tusks to lift Eleanor to her feet when she collapsed. Even after Eleanor died, elephants repeatedly visited and caressed her body. Cynthia Moss and other researchers have also reported elephants sprinkling their dead with soil and covering them with branches and leaves.

A number of other species share similar humanlike traits, among them gorillas, orangutans, dolphins and porpoises. What distinguishes orcas and elephants -- what makes holding them in captivity so uniquely fraught -- is one of the same features that makes them so attractive to zoo-goers: their immense size. African elephants can weigh as much as 15,000 pounds and are used to traveling between watering holes and feeding sites hundreds of miles apart. Confined elephants often spend their time standing around in cramped quarters. Killer whales can reach a length of 32 feet and a weight of 22,000 pounds. The approximately four dozen orcas now in captivity are forced to trade the ocean for a bathtub. At Miami Seaquarium, the aging Lolita lives in a tank that is not even twice as wide as she is long.

These tortuous conditions inflict serious physical and psychological damage on such smart and sensitive animals. Zoo elephants die young, often after becoming obese and infertile. They frequently develop psychological tics such as swaying and head bobbing. Citing ethical reasons, several large zoos in the U.S., Canada, the U.K. and India have closed their elephant exhibits.

Captive orcas are unusually aggressive, biting and ramming one another as well as trainers. Many researchers think the animals behave this way because they are so stressed; some have suggested that longtime confinement makes cetaceans psychotic. In February 2010 SeaWorld orca Tilikum pulled 40-year-old senior trainer Dawn Brancheau underwater, shook her violently, scalped her and severed her spine. It was the second time he had killed a trainer. Wild orcas have never killed anyone.

Orcas and elephants are not the only intelligent species that deserve our respect and attention, but they face unique hardships in captivity. Even though many zoos and sea parks raise awareness about the plight of animals in the wild, the suffering of captive orcas and elephants in particular overshadows this

worthy goal. Some currently confined individuals may not survive if released, but the ones that can be, should be, and captive breeding programs should be terminated.

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By the Editor

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