

## CULLING SURPLUS ANIMALS FOR POPULATION MANAGEMENT

Robert Lacy

**I**n a world of finite resources, it is impossible to maintain the lives of some animals without sacrificing the lives of others. Thus, the decision of whether to cull animals when they become surplus to the needs of a program (propagation, education, or research) is not a consideration of whether animals should be killed but rather which animals will be killed. Zoos often do not cull favored animals because of the pain that it causes to those humans that have long cared for the animals. Decisions about which animals to kill are based on considerations of human feelings, although the justifications are often couched in terms of animal welfare or animal rights. The continued maintenance of favored animals, after no further progeny are desired and no other uses for the animals can be identified, uses resources that are needed to prevent the suffering and death of other animals, both currently living and yet to be born. Because of unwise use of resources, evolutionary lineages and ecological communities of organisms, which otherwise might be conserved, will die.

Let me preface my remarks with a brief admission of my philosophical leanings. My judgments about right and wrong are primarily consequentialist or utilitarian. I care more about the effects of an action than the motivations that led to it or some other measure of intrinsic goodness of the action. I view most actions as having both good and bad effects, and I consider most ethical those actions that lead to the most good while causing the least harm. Perhaps because of my training in evolutionary biology, I usually look at the long-term, even multigenerational, impacts of actions. I am distressed when I witness the suffering of an animal, but I find abhorrent the view that benefits to nearby and present individuals should outweigh the quality and even existence of distant or future life.

In the terminology of many animal rights advocates, I am an environmental fascist. I value living, interacting, evolving communities of organisms more than the lives of the individuals that temporarily exist as elements of those communities. My views arise, in part, from the value I place on the system (environmental holism); in part, from a judgment that benefits to the broader ecological communities will necessarily lead to more benefit for more of the individuals within those communities (animal welfare collectivism). In spite of the overriding importance I assign to evolving communities of living organisms, much of what I will argue below will focus on the welfare of individual animals. I intend to show that even considerations of individual animal welfare and rights do not necessarily lead to the conclusions and actions usually ascribed to animal welfare and rights views.

### SOME BIOLOGICAL REALITIES AND DEFINITIONS

Animals that are born will die. Except for those that are killed quickly by an efficient predator (perhaps human), most sentient animals will suffer pain when dying. Death from disease, starvation, injury, or failure of organ systems due to age usually occurs slowly and with suffering. Because of competition, predation, and avoidance of predation, many animals must die to sustain the life of those that survive long. Thus, the reality that many more animals are born than can live to reproduce and get old is not just an incidental consequence of the fact that species have evolved high reproductive rates. Deaths would occur even if each pair produced only two progeny, and generally, those species that are the most fecund also suffer the highest natural mortality. For some animals to enjoy more than a marginal existence—having good nutrition, lots of space, and freedom from competitors, predators, and disease—even more other animals must be sacrificed directly (e.g., by being eaten) or indirectly (e.g., by forgoing a meal or by being excluded from adequate habitat). The only way to eliminate death is to eliminate life. The only way to end all suffering of wildlife is to eliminate the wild.

Surplus animals are those that are no longer needed for the goals of a program. The concept implies a utilitarian view, with the goals defined by and perhaps serving humans. Animals that are surplus to one purpose may still be of considerable value for other goals, for example, breeding programs elsewhere, research, or exhibition.

Culling is the termination of the life of an animal before it would have died from unavoidable disease or failures of organ systems (old age or natural causes). Contrary to the definitions supplied to participants of the Atlanta conference,

culling is not by definition painless and humane. Culling could be achieved by painful slaughter, although such would unnecessarily sacrifice individual welfare with no benefit to others and, thus, would show unethical disrespect for sentient animals.

### CONSEQUENCES OF CULLING SURPLUS ANIMALS

Culling kills animals. Culling of a surplus animal also frees resources that would otherwise be used to maintain that animal, allowing those resources to be used for the benefit of other animals. In zoos, the resources required for maintenance of animals are usually described as "cage space," although this term encompasses funds for feed, keeper time, and facility maintenance, as well as actual physical space. When an animal without further value to the program (Species Survival Plan, other propagation program, research, education) is culled, the cage space made available allows for the production of another animal with greater value to the program, or the acceptance of an already living animal that may be surplus to the needs of another facility. In a world of finite resources for captive breeding, culling one animal directly allows another to live.

For example, because subspecies-hybrid orangutans occupy roughly one-third of spaces for the species in U.S. zoos, breeding of pure-subspecies orangutans has been severely curtailed. It is questionable whether adequate spaces are available for maintaining healthy populations of the two subspecies in zoos, if hybrids continue to occupy spaces for the twenty to thirty years more that most existing hybrids could live, and if other species are not displaced to release more spaces for orangutans. (There are two subspecies of orangutans, one from Sumatra and one from Borneo. Before the considerable genetic differences between the two forms were recognized, zoos frequently interbred the subspecies. Subsequently, the SSP has declared a moratorium on the further production or breeding of the hybrids, in the hope that the propagation program could sustain healthy populations of the pure subspecies.)

The orangutan example also points out another consequence of culling: more populations of wildlife can be maintained secure from extinction if animals not desirable for further breeding are culled. The cost of maintaining hybrid orangutans could be calculated in dollars (Lacy 1991, Lindburg 1991), but the cost can also be expressed in terms of species survival. The presence of surplus orangutans in zoos effectively prevents the protection of one great ape population, or another species with similarly large resource requirements. The survival of a population of animals in captivity or in the wild is directly related to the number of breeding

animals (Soulé et al. 1986, Soulé 1987). Except in those few cases in which animals care for or otherwise benefit nonoffspring in a social group, postreproductive animals contribute nothing to future generations. The number of species maintained with finite resources, however, is usually directly related to the total numbers (breeding or not) of animals maintained per species. Thus, a maximization of the proportion breeding in each population will maximize the number of species protected. Because natural habitats have been destroyed, and resources to redress the damage at least partly are limited, many species will go extinct even though we have the knowledge to protect them. Extra resources spent protecting favored, but surplus, animals means that even more species will go extinct.

Placing such a value on species protection is clearly antithetical to many concepts of animal rights. I view, however, the loss of a species and, therefore, the prevention of all future lives of that life form and of any that could have arisen from it to be far worse than the loss of any individual life. Individuals are always mortal; species may continue through evolutionary time. (Although the fossil record shows that species typically persist for a few million years, many extinctions result from evolution into a different form, rather than the actual termination of an evolutionary lineage.) An individual can suffer an unnecessarily premature death; a species can suffer an unnecessary death.

### CONSEQUENCES OF NOT CULLING SURPLUS ANIMALS

Not culling kills animals. If surplus animals are not culled, animals may not be bred, because the resources needed to sustain them are used by the surplus animal. One, perhaps undesirable, means of preventing deaths is to prevent the procreation of life. Yet existing animals and species are dying because of limited resources for their sustenance. Thus, even if additional animals are not to be bred in a captive program, the refusal to cull surplus animals expends resources that could be used to prevent deaths of other presently existing animals and extinctions of species. The millions of dollars spent on maintaining surplus animals in zoos could go far to advance animal welfare and species conservation, if we choose to redirect those funds.

Even if monetary resources cannot be redirected (i.e., society chooses not to do so), simply housing and feeding surplus animals causes the deaths of other animals. For a carnivore, the connection is obvious. Even for an herbivore (or a carnivore cruelly forced to live on a vegetarian diet), the provisioning of food to one animal is damaging to others. Probably the most destructive human activity is agriculture. Vast areas of the globe have been denuded of the natural biota in

order to support food production for humans and for animals provisioned by humans. The deaths that occur because of this habitat destruction are not always painless. Poisons, traps, and farmers' cats do not always kill humanely. The pest control measures often incidentally kill many individuals of nontarget species. Even the setting aside of land to house comfortably the zoo's surplus (and nonsurplus) animals takes a toll, as predators, competitors, and many incidental resident species are cleared to make way for the managed population. For example, the San Diego Wild Animal Park is a magnificent, spacious habitat for many endangered species, but its maintenance requires the replacement of native vegetation by alien grasses, the exclusion of many native herbivores, and the control of coyotes. The "retirement homes" suggested by the Lindburgs will similarly displace and kill wildlife (Lindburg 1991; Lindburg and Lindburg, this volume).

It is inescapable that decisions to cull animals and decisions not to cull animals always involve a judgment that some animals will die and others will live. Often the deaths occur to animals about which we have no or only vague awareness, and often the deaths are not without suffering (especially in those cases in which the deaths are indirect and hidden).

### WHY DO ZOOS (USUALLY) NOT CULL SURPLUS ANIMALS?

I would argue that zoos usually avoid culling surplus animals in order to minimize human discomfort. The decisions are based on the rights of humans to lead happy lives, not on considerations of nonhuman animal rights. When we care for an animal for many years, whether that animal is in a zoo or is a family pet, we learn a lot about its individuality, we empathize with it, and we receive emotional rewards from our interactions with it. Generally, the warmth we feel toward an animal relates in part to how similar its features and expressions are to our own, even if we misread those expressions. For example, bottlenose dolphins, with their upturned, smiling mouths, engender great sympathy. Animals with forward-pointing eyes are often perceived as more responsive to us than those with laterally placed eyes, even though most mammals with forward eyes are carnivores with a need for accurate depth perception (for pouncing on prey) and most mammals with lateral eyes are herbivorous, nonaggressive prey species. Infant animals elicit greater emotional response from humans, perhaps because we are neotenic and infant animals look more like us. Large animals are also easier for us to empathize with; small mammals get little consideration, even if (like bats) they possess remarkable sensory and maybe even cognitive capabilities (Griffin 1984).

It should be clear from the way in which we rank the rights of animals to be spared culling that our judgments are based on the feelings elicited in humans, not the feelings of the animals themselves. We usually do not cull animals in our care because we feel that we would suffer.

Our decisions about which animals can morally be culled are not based on assessments of the mental capabilities of the animals. We accept culling of pigs on farms, but not (usually) culling of peccaries in zoos. We accept harvest of cattle for meat, but would abhor killing of surplus gazelles to feed the families of curators. We shoot, trap, and poison coyotes, but find it unacceptable to euthanize a tiger until it is suffering from incurable disease or the effects of age. Within zoos, many of us cull small rodents, but not large ones. We cull bats, but not cats.

Nor can our decisions about culling be justified by assigning blame for animal deaths (pigs, cattle, coyotes, rodents, bats) to someone else. If we eat meat, wear leather products, cultivate artificial lawns, or own pets, we know that our actions are directly or indirectly causing destruction of life, often of sentient higher mammals. In fact, we are responsible for all of life because we have chosen, by our numbers and our life-styles, to disrupt the global ecosystem and put all forms of life at risk.

I must emphasize and reiterate: Decisions regarding the culling of animals in zoos have been based on maximizing human pleasure. They rarely are based on animal welfare or animal rights and are often counter to those goals.

### SHOULD ALL SURPLUS ANIMALS BE CULLED?

No. Our feelings do matter. The emotional bonds we feel to animals near us, with which we feel that we share experiences, are essential motivators behind the care we give to animals. The attachments we form with other animals are probably as important as any economic arguments in instilling in people a sense of responsibility for preventing the destruction of the natural world. Perhaps we do need to protect, for inherently selfish reasons, some of our favorite animals, in order to nurture feelings of compassion, stewardship, and responsibility for life.

I have three cats in my house. Although I do not let them outside to prey upon songbirds, they do utilize resources. They serve no purpose but to increase my happiness. Maybe zoos can keep a favorite tiger or gorilla long past the end of its breeding lifetime for the same reason. I hope, however, that the reasons behind our reluctance to cull our favorite animals are openly admitted to ourselves and to the public. We are restrained by concern for our happiness, not by moral imperative.

## CAN ZOOS AVOID PRODUCING SURPLUS?

Not always, unless we are willing to subjugate the futures of many animals and many species to the interests of a select subset of individuals in our zoos today, so that we can define all animals in our zoos to be nonsurplus. Often, an animal identified as surplus in one context (say, a Species Survival Plan) can still fill an important role elsewhere. Respect for that animal as an individual and as a living resource requires that we not needlessly discard it. Some exhibits are not designed and are not appropriate for breeding. Those exhibits should be inhabited by animals that have been declared undesirable for breeding.

As discussed by Lindburg and Lindburg in the next chapter, for many species an appropriate allocation of zoo space has been filled, or overfilled. As soon as a pair produces two offspring (or some other number that might be calculated to account for juvenile mortality or to allow for genetic management), the pair becomes surplus to the breeding program. Ideally, from a genetic and demographic standpoint, we would refrain from breeding a pair of animals until there was just enough time to obtain the desired number of progeny before the breeders become physiologically postreproductive or die (Lacy in press). Such a scheme would limit the surplus animals to those relatively few at any one time that were postreproductive but not yet dead. Unfortunately, because we cannot know when an animal will become postreproductive, and because some animals will not breed unless they are paired when still young, we often must obtain the desired progeny from a pair much earlier in their potential lifetime.

Zoos can, by careful, cooperative planning of breeding programs, keep the production of surplus animals to a minimum, perhaps well below the level currently being produced. Lindburg and Lindburg also describe well the possibility of using the spaces and other resources better, to produce more of the animals needed for conservation and fewer of those having little direct or indirect benefit to conservation and the welfare of the animals themselves.

Is it unethical for zoos to produce abundant births, perhaps out of a lack of effort to contracept breeding or perhaps to entertain the public, and then to cull those not desired? Clearly, this is the approach of much of the pet industry, of some livestock producers, of many research laboratories, and of much of wildlife management. This practice shows minimal regard for the welfare of individual animals (except in that the killing is often done in a painless way) and can waste considerable resources. If zoos have a mission to cultivate respect for wildlife, then respect for individuals must be part of that, even if it does not take precedence over the preservation of species. If zoos also have a mission of furthering conservation, then the unnecessary production of surplus animals is an inexcus-

able dereliction of our duty to use resources wisely for the protection of the natural world.

I have some difficulty with, but can accept, that often we will not cull surplus animals because we value our sensitivities over the preservation of species. I cannot condone the production of surplus simply to satisfy the short-term and shallow goals of convenience (e.g., not contracepting) or light entertainment of a few people. The costs in terms of individual animals, of species, and of desensitizing people to the value of animals are too great.

Every time a zoo produces an animal, that zoo takes on the responsibility not only for that animal's welfare during its life but also for its death. For me, the purposes for which zoos produce many animals are sufficiently compelling to justify the creation, management, and termination of the lives of animals. For each prospective animal, however, competing interests must be weighed, and they should be weighed prior to the birth of the animal, because that is when we make the irrevocable decision to be responsible for the life and death of that animal.

## REFERENCES

- Griffin, D. R. 1984. *Animal Thinking*. Cambridge, Mass.: Harvard University Press.
- Lacy, R. C. 1991. Zoos and the surplus problem: An alternative solution. *Zoo Biology* 10:293-297.
- . In press. Managing genetic diversity in captive populations of animals. In *Restoration and Recovery of Endangered Plants and Animals*, ed. M. L. Bowles and C. J. Whelan. Cambridge: Cambridge University Press.
- Lindburg, D. G. 1991. Zoos and the "surplus" problem. *Zoo Biology* 10:1-2.
- Soulé, M. E., ed. 1987. *Viable Populations for Conservation*. Cambridge: Cambridge University Press.
- Soulé, M. E., M. Gilpin, W. Conway, and T. J. Foose. 1986. The millennium ark: How long a voyage, how many staterooms, how many passengers? *Zoo Biology* 5:101-113.