Cats with 10 Lives

Why we need to regulate the cloning of felines and other animals.

Mary Ann Daniel and her husband, Roland, have had many cats, but Smokey, they said, “was one in a million.” He showed up on Mary Ann’s doorstep when he was just six months old. Roland’s 11-year-old son had just died, and Smokey’s arrival helped assuage their grief.

When Mary Ann read an article about a company called Genetic Savings & Clone that was offering cat cloning, she jumped at the chance. She took Smokey to the vet, who swabbed the cat’s mouth in a simple, painless procedure to get a cell culture and shipped the cells off to Genetic Savings & Clone, where the company stored them in its gene bank.

Genetic Savings & Clone’s feline cloning research project, Operation CopyCat, has already created a calico clone, and this summer, they used cells from a Bengal named Tahini to create two cloned kittens named Tabouli and Baba Ganoush. At $50,000 a clone, the service isn’t cheap, but the company has five orders to be delivered this winter. The Daniels plan to order a clone of Smokey once the price has dropped.

Decisions like the Daniels’ are controversial because,
many critics say, the company is taking advantage of the emotions of the bereaved. “It’s a scam, really, because they’re not going to get a replica of their animal, other than perhaps physically,” said Peter Wood, a spokesman for People for the Ethical Treatment of Animals.

But a more interesting and poorly understood issue concerns the rights of Smokey 2.0. As emotionally complex an issue as cloning animals is, it’s also dangerous, perhaps cruel and illegal, and almost totally unregulated. The consequences of remaking Smokey could be grim. Cloned animals often have severe health problems, and it’s likely that Smokey 2.0 will die a grisly, early death. “Almost all clones will suffer and die, and they will do so not because of some natural illness or misfortune, but because researchers have chosen to bring them into existence using a process that is not understood well enough to use safely,” wrote Hilary Bok, a philosophy professor at Johns Hopkins University. “These differences are not rare or anomalous: they are the norm.”

Scientific studies have yielded a range of poor results. As reported in the journal Nature Biotechnology, 23 percent of all mammals that are cloned using traditional methods never reach healthy adulthood, instead falling victim to anemia, heart defects, liver fibrosis, obesity, and respiratory failure. The journal Cloning and Stem Cells reported that of 511 cloned pig embryos in an experiment, only 28 pigs came to term—of which a single clone was born healthy. One was born without an anus or a tail.

Nature Genetics reported that two-thirds of cloned mice died prematurely, and another survey found that they were much more likely to become obese in middle age. Eighty-five percent of embryos cloned from healthy cattle miscarried or had heart defects, joint problems, diabetes, severe anemia, or developmental problems. Even cloned cattle that
appeared healthy scored lower on intelligence and attentiveness tests. The group that created Dolly the sheep, the first cloned mammal, had 276 failures before their success with Dolly. Dolly herself was euthanized in 2003 because of a lung tumor.

No one knows whether these problems are intrinsic to cloning or the result of human error in the use of cloning techniques. Most likely, the problems stem from the immaturity and complexity of the process. The most common cloning technique is nuclear transfer, in which scientists take adult cells from the animal they’re trying to clone—in Smokey’s case, the cells from his mouth—and insert them into eggs that have had their nuclei removed. This works because the DNA is the same for a cheek cell as for an embryo. But the procedure runs into problems because the cells also contain proteins that are required for their former adult functions. Once inserted into an egg, the cell has to get the message that it’s supposed to become an entire animal, not just a mouth. Sometimes that message doesn’t get through.

Genetic Savings & Clone says it is developing techniques superior to nuclear transfer. But the success of these new techniques remains to be seen. “It’s true, to date, animals born to cloning have a higher incidence of health problems than animals born to natural reproduction,” said Ben Carlson, a spokesman for Genetic Savings & Clone.

If cloned animals are likely to be born with severe health problems, is bringing an animal into existence to live a short, brutal life a form of animal torture? And if so, could a facility like Genetic Savings & Clone be found guilty under animal cruelty laws?

Animal cruelty laws prevent us from hurting animals without a good reason. The most important law is the Animal Welfare Act, passed in the 1960s after an article in *Life*
prompted public concern about pet cats and dogs being mistreated, stolen, or sold to research facilities. The act specifies minimum standards of care for every sort of institution that houses animals, including zoos, circuses, puppy mills, and airlines.

State statutes approach the issue from the opposite angle, defining animal cruelty by specifying what is not permitted, namely, intentionally inflicting pain; killing an animal; or treating it with gross negligence, such as depriving the animal of food, water, and veterinary care. The severity of penalties varies by state. In 41 states, animal cruelty is a felony; in the other 9, it’s a misdemeanor. Over the past two decades, laws have generally gotten tougher. When Senate majority leader Bill Frist was a student at Harvard Medical School in the early 1970s, he routinely, according to his autobiography, took cats home from animal shelters and practiced operating on them, often killing them. He wouldn’t have faced harsh punishment, though, since that kind of animal cruelty was not a felony in Massachusetts then. But it is now.

Bringing a successful civil or criminal suit against a company or individual for causing pain or creating problems through cloning would require clearing several thresholds. First, you would have to show that it is the cloning company, rather than the veterinarians it partners with, that is working with the animals. “What we’re doing here actually does not involve animals. It involves embryo manipulation and cell culture,” said Ben Carlson.

The second hurdle concerns legal standing since the animals obviously can’t bring the cases themselves. Most cruelty cases are brought by animal rights organizations, like the Humane Society, or by local prosecutors. But, so far, no organization has offered to bring cases on behalf of clones.

Third, for a felony conviction, you would have to show
that the cloner had intent to harm. State anticruelty statutes apply to intentional and malicious acts, like the one involving the Californian who, in a fit of road rage, scooped a bichon frise dog off a driver’s lap and lobbed it into oncoming traffic (a crime for which the offender is now serving three years in prison). This standard exists partly because studies show that torturing animals can signal a dangerous pathology that leads to injuring human victims; the serial killer Jeffrey Dahmer impaled the heads of dogs and cats on sticks. But this standard also lets cloners off. Genetic Savings & Clone’s specific intent is clearly not to hurt animals.

For misdemeanors, it’s generally sufficient to show that a person knowingly condoned an act of cruelty. But again, demonstrating this would be hard. You might argue that the cloner knows that cloning techniques have a high failure rate and often cause serious problems. But so does reproduction in general. “In conventional breeding, anywhere around 30 percent of cats born don’t survive,” Carlson said. “Our losses are consistent with that.”

If Smokey 2.0 drops dead from a strange cloning-related problem, Genetic Savings & Clone would likely face no legal consequences. “Cloning would not be covered by anticruelty statutes,” said Taimie Bryant, a professor of law at UCLA. “As far as cruelty issues are concerned, cloning is below the legal radar.”

Cloning animals for use as pets may or may not be ethical. And Genetic Savings & Clone may or may not be creating one Frankencat for every two successful Smokeys it sells. But if it were, the law is not equipped to deal with the problem.

Pet cloning exists in a regulatory no-man’s-land. There are no laws about pet cloning, and there is no government agency that regulates it. The FDA has the authority to regulate cloned animals entering the food supply, but since cats...
are (presumably) not being cloned to be eaten, the agency has declined to get involved.

But a legal solution does exist, and it can be found by looking at the logic underpinning medical research standards. There, experimentation on animals is governed by the federal Animal Welfare Act, which requires that lab animals receive food and water, adequate veterinary care, enough room to turn around in their cages, and a humane death. Researchers can otherwise do just about anything to the animals—poison, irradiate, drown, or dissect them—so long as they do it for legitimate scientific purposes.

A similar standard could be applied to legislation regarding genetically modified animals, if society deems that a few botched Smokeys are worth the Daniels’ happiness. Standards for care in the cloning facility should be prescribed, and cloning centers should be required to register with state governments.

In addition, a new category of law is needed for animals created through genetic manipulation—and for the losses that arise in the name of commerce, not science. The new category would include clones and other existing genetically modified animals, like goats that have rat genes so they’ll produce low-fat milk; and enviropigs, whose manure doesn’t stink.

In the meantime, the Daniels await the moment they can order their pet. “Knowing we’ll get the clone is probably the only thing that keeps us going forward,” says Mary Ann Daniel. “Smokey’s unlike any other.”

Well, except for his clone.