

GENETIC ENGINEERING OF DOMESTIC ANIMALS: HUMAN PREROGATIVE OR ANIMAL CRUELTY?

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Selective breeding and genetic engineering of domestic animals represent two of science's most manipulative advancements of the last century. One of the many questions raised by these procedures is whether the suffering produced violates state anti-cruelty laws. California's animal anti-cruelty statute is one of the most comprehensive and progressive in the country. This article examines whether selective breeding and genetic engineering violate California's anti-cruelty statute, highlighting recent California case law interpreting these statutes and outlining the standard to determine when a violation has occurred. Furthermore, the article seeks to articulate policy suggestions to further the protection afforded these animals affected by science.

"We are all of us guinea pigs in the laboratory of God."¹

I. INTRODUCTION

Humans have been manipulating animals through the use of selective breeding and genetic engineering for over one-hundred thousand years.² Selective breeding for specific traits has produced virtually every known breed of domestic animal in existence today.³ "In animals, genetic mutations are created to reduce disease, and otherwise improve health or increase weight."⁴ Unfortunately, many of these mutations have resulted in the development of uncomfortable and painful traits in domestic animals.⁵ Exploitation of these animals has continued due to the notion that animals are property and do not

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¹ TENNESSEE WILLIAMS, *FAMOUS AMERICAN PLAYS OF THE 1950s* 202 (1962).

² Terri A. Jones, *Patenting Transgenic Animals: When the Cat's Away, the Mice Will Play*, 17 Vt. L. Rev. 875, 877 (1993).

³ Paul Blunt, *Selective Breeding and the Patenting of Living Organisms*, 48 SYRACUSE L. REV. 1365, 1380 (1998).

⁴ Joanna Ramey, *Group Sues FDA on Genetic Labeling*, SUPERMARKET NEWS, June 1, 1998, at 82.

⁵ MICHAEL J. REISS & ROGER STRAUGHAN, *IMPROVING NATURE?: THE SCIENCE AND ETHICS OF GENETIC ENGINEERING* 177 (1996).

have rights.⁶ "While the efforts of the animal rights movement have produced some minor gains in the legal status of animals . . . [animals] remain legally unrecognized and unprotected."⁷

This Comment discusses whether selective breeding and the genetic engineering of domestic animals violates California's anti-cruelty statute. Section II discusses the development of the property status for animals and their current legal status in the United States, concluding with the historical development of anti-cruelty statutes. Section III discusses California's anti-cruelty provisions and the judicial interpretation of their application. Section IV outlines the history of selective breeding and the development of the genetic engineering of domestic animals. Further, examples of animals that have been bred to exhibit painful traits are analyzed in light of California's anti-cruelty statute. Section V suggests reforms in selective breeding and genetic engineering that would better protect animals. Finally, Section VI explains the problems of selective breeding and concludes that a new solution needs to be implemented to save animals from further suffering.

II. THE DEVELOPMENT OF LEGAL PROTECTIONS FOR ANIMALS

Virtually all uses of animals that produce some benefit to humans are regarded as legitimate.⁸ Currently, animals are considered mere entities and the property of humans. As entities, they do not have legal rights.⁹ Therefore, animals cannot be adequately protected by our legal system.¹⁰ Lacking the fundamental rights to life and freedom from cruel and inhumane treatment, the only applicable requirement is that animals not be wasted or made to suffer in the absence of a legitimate social benefit.¹¹ This status allows humans to sell their animals, eat or kill them, and use them for entertainment purposes.¹² As a result, animals are enslaved, restrained, mutilated, tortured, and killed with the support of our justice system.¹³ These conditions exist in slaughterhouses, factory farms, breeding projects, and through genetic engineering.

More specifically, the current prevailing attitude towards animals can be explained through the theory of legal welfarism. Legal welfar-

⁶ Thomas G. Kelch, *Toward a Non-Property Status for Animals*, 6 N.Y.U. ENVTL. L.J. 531, 532 (1998).

⁷ Susan Finsen, *Obstacles to Legal Rights for Animals*, 3 Animal L. i, i (1997).

⁸ GARY L. FRANCIONE, *ANIMALS, PROPERTY, AND THE LAW* 24 (1995). Professor Francione provides a detailed discussion of the development of various legal theories and laws protecting animals. Interested readers should consult this source for a more detailed discussion of the issues discussed in this portion of the comment.

⁹ Gary L. Francione, *Animals, Property and Legal Welfarism: "Unnecessary" Suffering and the "Humane" Treatment of Animals*, 46 RUTGERS L. REV. 721, 723 (1994).

¹⁰ *Id.*

¹¹ FRANCIONE, *supra* note 8, at 35.

¹² *Id.*

¹³ Derek W. St. Pierre, *The Transition from Property to People: The Road to the Recognition of Rights for Non-Human Animals*, 9 HASTINGS WOMEN'S L.J. 255, 255 (1998).

ism is the concept that animals, as human property, may be used by humans as a means to an end, so long as this exploitation does not result in the infliction of "unnecessary pain, suffering or death."¹⁴ According to this theory, in order to determine what constitutes humane treatment and unnecessary suffering, human interests must be balanced against those of animals.¹⁵ Consequently, an animal's value is measured in terms of its reasonable and efficient use to humans,¹⁶ and not in terms of the animal's self-interest or inherent value.¹⁷

Another legal theory affecting the legal status of animals is classical utilitarianism. Utilitarianism aspires to create the greatest happiness for the greatest number of people.¹⁸ Within this theory, animals only serve to enhance human happiness.¹⁹

Although the theories of legal welfarism and classical utilitarianism share the premise that humans are of paramount importance, the result of their treatment towards animals is very different. Legal welfarism advocates using animals to the extent of their usefulness. Whereas, classical utilitarianism supports the protection of animals against cruelty "because such cruelty might affect the nature of humans and thereby change the way humans deal with each other."²⁰

With these theories forming the basis of human beliefs about the values of animals, it is not surprising that the common law has not recognized cruelty to animals as an offense.²¹ Only through state anti-cruelty statutes are the concerns about the use and treatment of animals addressed. Prior to these anti-cruelty statutes, animals were only protected "through statutory prohibitions of malicious mischief and trespass."²² Malicious mischief generally required that the act include malice towards the owner of the harmed animal, not just towards the animal.²³ "Today, however, most jurisdictions have enacted statutes which make it a criminal offense to treat an animal with cruelty."²⁴ Anti-cruelty statutes typically define the type of animal it protects and the scope of the protection, including "the conduct prohibited, the mental state of the actor, and the penalty."²⁵ Despite the seeming in-

¹⁴ FRANCIONE, *supra* note 8, at 18.

¹⁵ *Id.*

¹⁶ St. Pierre, *supra* note 13, at 259.

¹⁷ *Id.*

¹⁸ Susan Emmenegger & Axel Tschentscher, *Taking Nature's Rights Seriously: The Long Way to Biocentrism in Environmental Law*, 6 GEO. INT'L ENVTL. L. REV. 545, 556 (1994).

¹⁹ *Id.* at 557-58.

²⁰ *Id.* at 557.

²¹ FRANCIONE, *supra* note 8, at 121.

²² Francione, *supra* note 9, at 750.

²³ *Id.*

²⁴ Thomas R. Malia, Annotation, *Applicability of State Animal Cruelty Statute to Medical or Scientific Experimentation Employing Animals*, 42 A.L.R. 4TH 860 (1986). For an excellent overview of state anti-cruelty laws, see Pamela Frasch et al., *State Anti-cruelty Statutes: An Overview*, 5 ANIMAL L. 69 (1999).

²⁵ Francione, *supra* note 9, at 751.

terest in protecting animals, the driving force behind the enactment of these laws is an extension of the legal theories of welfarism and utilitarianism—to preserve a moral society.²⁶ Accordingly, anti-cruelty statutes are still “designed to prevent ‘unnecessary’ suffering, and do not create . . . ‘rights’ for [] animals.”²⁷ Similarly, even though the effect of anti-cruelty laws may limit a property owner’s treatment of an animal, property rights remain the paramount basis to determine an animal’s protections under the law.²⁸ Since these statutes are “not intended to unreasonably interfere with a [person’s] use or enjoyment of [] animals, [] not every act which causes pain and suffering to the animal is prohibited.”²⁹

Generally, anti-cruelty statutes are applicable to any “animal.”³⁰ However, some states’ statutory definitions have been narrowed through statutory language to exclude certain types of animals, such as livestock and insects.³¹ Other states have failed to provide any guidance, thereby leaving the interpretation of which animals are protected under their respective statutes to the judiciary.³²

Besides defining the term “animal,” some states have also defined the scope of animal cruelty in their statutory scheme. For example, New York has defined cruelty to encompass depriving an animal of “necessary sustenance,” such as denying food, water, or shelter.³³ States using this language limit convictions to actions which result in the deprivation of “necessary sustenance.”³⁴ However, many state anti-cruelty laws extend the protections afforded animals even further.³⁵ One such state is California, which has one of the most comprehensive anti-cruelty statutes in the United States.³⁶

²⁶ Charlotte A. Lacroix, *Another Weapon for Combating Family Violence: Prevention of Animal Abuse*, 4 ANIMAL L. 1, 13 (1998).

²⁷ St. Pierre, *supra* note 13, at 259.

²⁸ FRANCIONE, *supra* note 8, at 24.

²⁹ Malia, *supra* note 24, at 860.

³⁰ Lacroix, *supra* note 26, at 13. *See also* State v. Stockton, 333 P.2d 735, 736 (Ariz. 1958) (excluding gamecocks from the animal cruelty statute); Commonwealth v. Masini, 188 A.2d 816 (Pa. Super. Ct. 1963) (failing to consider a cat a “domestic animal” for purposes of the anti-cruelty statute).

³¹ Lacroix, *supra* note 26, at 13.

³² *Id.* *See, e.g.*, ALA. CODE § 13a-11-14 (1997); FLA. STAT. ANN. § 828.12 (West 1998); MONT. CODE ANN. § 45-8-211 (1997).

³³ Francione, *supra* note 9, at 751.

³⁴ *Id.* at 752.

³⁵ *See generally* Frasch et al., *supra* note 24 (discussing the provisions of various state anti-cruelty statutes).

³⁶ Nicole Fox, *The Inadequate Protection of Animals Against Cruel Animal Husbandry Practices Under United States Law*, 17 WHITTIER L. REV. 145, 158 (1995). Ironically, although California’s anti-cruelty statute is one of the most comprehensive in scope, it explicitly exempts farm animals from protection. *See* CAL. PENAL CODE § 599c (West 1998).

III. ANALYSIS OF CALIFORNIA'S ANTI-CRUELTY STATUTE

"Each year, humans kill [eight] billion[] animals for food, clothing, entertainment and research."³⁷ While these uses of animals may seem cruel and unnecessary to some, these practices are generally acceptable within society and are not legally cruel. However, even within this rubric, it is difficult to justify mutating animals to exhibit painful traits when it causes the animals to suffer needlessly for human gain. California's anti-cruelty statute would seem to support this sentiment.³⁸

A. Statutory Language

California has one of the nation's most rigid anti-cruelty laws. For example, California Penal Code section 599b defines cruelty to include any act or omission "whereby unnecessary or unjustifiable physical pain or suffering is caused or permitted."³⁹ In addition to this broad scope, the anti-cruelty provisions include rigorous enforcement measures.⁴⁰ For example, California Penal Code section 597(b) states that any person who has "the charge or custody of any animal, either as owner or otherwise, [and] *subjects any animal to needless suffering, or inflicts unnecessary cruelty upon the animal, or in any manner abuses any animal . . . is guilty of a . . . misdemeanor . . . or . . . a felony . . .*"⁴¹ Despite the potential beneficial effect of these statutes on animals, their main focus remains preserving human property interest in animals.⁴² Illustrating this point, California Penal Code section 599b defines "animal" to include "every dumb creature."⁴³

Furthermore, California's anti-cruelty statute expressly exempts animals that endanger humans or their property, farm animals, and

³⁷ Laura G. Kniaz, *Animal Liberation and the Law: Animals Board the Underground Railroad*, 43 BUFF. L. REV. 765 (1995).

³⁸ See CAL. PENAL CODE § 597(b) (West 2000) ("person who . . . subjects any animal to needless suffering, or inflicts unnecessary cruelty . . . is . . . guilty of a crime"). *But see* CAL. PENAL CODE § 599c (West 2000) ("No part of this title shall be construed as interfering with . . . the right to kill [] animals used for . . . properly conducted scientific experiments or investigations performed under the authority of the faculty of a regularly incorporated medical college or university of this state.").

³⁹ CAL. PENAL CODE § 599b (West 2000).

⁴⁰ See CAL. PENAL CODE §§ 597(a)-(c) (West 2000) (imposing imprisonment in state prison and/or a fine of \$20,000); CAL. PENAL CODE § 599aa(a) (West 2000) (providing for seizure of fighting animals); CAL. PENAL CODE §§ 600.2, 600.5 (West 2000) (penalty for death of guide, service, or signal dog). *See also* CAL. PENAL CODE §§ 597(a), (c), 597(1) (West 2000).

⁴¹ CAL. PENAL CODE § 597(b) (West 1999) (emphasis added). "A felony is a crime which is punishable with death or by imprisonment in the state prison. Every other crime or public offense is a misdemeanor except those offenses that are classified as an infraction." CAL. PENAL CODE § 17(a) (West 2000). A misdemeanor is punishable by imprisonment or fine. CAL. PENAL CODE § 17(b) (West 2000).

⁴² FRANCIONE, *supra* note 8, at 125.

⁴³ CAL. PENAL CODE § 599b (West 1999).

“laboratory animals” used for experimentation.⁴⁴ These activities are excluded from the scope of California’s anti-cruelty statute because they represent types of animals and corresponding conduct that are thought to be beneficial to human beings.⁴⁵ Ordinarily, experiments on animals, conducted in good faith and without the reckless, unreasonable, or deliberate infliction of unnecessary pain and suffering, do not constitute cruelty.⁴⁶ Despite significant evidence indicating that animals have the capacity to suffer pain and possess complex cognitive abilities,⁴⁷ “incidental” animal suffering is regarded as necessary or humane.⁴⁸ As a result, a defendant accused of animal cruelty can easily preclude criminal liability by arguing that the conduct was necessary to achieve an accepted end. Consequently, this conduct should not be exempted from the reach of the anti-cruelty statute.⁴⁹ Therefore, even though California has adopted one of the most facially comprehensive anti-cruelty statutes in the country, there remain many ways to avoid the intended effects of the statutory scheme.

B. *Judicial Interpretation*

California appellate courts have had ample opportunity to interpret the anti-cruelty statute. However, judicial interpretation of the level of intent required to convict under the anti-cruelty statute varies from case to case.⁵⁰ Under one line of reasoning, in order to convict a defendant, his actions need only be committed with ordinary negligence.⁵¹ On the other hand, other judges have required that the offender’s actions demonstrate criminal negligence.⁵² Negligence is defined in the California Penal Code as “import[ing] a want of such attention to the nature of probable consequences of the act or omission

⁴⁴ CAL. PENAL CODE § 599c (West 1998).

⁴⁵ The statute states in relevant part:

No part of this title shall be construed as interfering with . . . the right to destroy . . . any animal known as dangerous to life, limb, or property, or to interfere with the right to kill [] animals used for food, or with properly conducted scientific experiments or investigations performed under the authority of the faculty of a regularly incorporated medical college or university of this state.

CAL. PENAL CODE § 599c (West 1999).

⁴⁶ 4 AM. JUR. 2D *Animals* § 29 (1995).

⁴⁷ Steven J. Haverkamp, *Are Moderate Animal Welfare Laws and Sustainable Agricultural Economy Mutually Exclusive? Laws, Moral Implications, and Recommendations*, 46 *DRAKE L. REV.* 645, 671 (1998). There are similarities between the communications of chimpanzees and humans. *Id.* at 671-72. In addition, both chimpanzees and humans are capable of having very complex sign language conversations. *Id.*

⁴⁸ FRANCIONE, *supra* note 8, at 130.

⁴⁹ Francione, *supra* note 9, at 751.

⁵⁰ Sonja A. Soehnel, Annotation, *What Constitutes Offense of Cruelty to Animals—Modern Cases*, 6 *A.L.R.* 5TH 733 (1992). See CAL. PENAL CODE § 597(a) (West 2000) (requiring “maliciously and intentionally”); CAL. PENAL CODE § 597a (requiring “knowingly and wilfully”). Other sections do not use any mental state words. For example, section 597f uses the word “permits.” CAL. PENAL CODE § 597f (West 2000).

⁵¹ See *infra* Part III.B.1.

⁵² See *infra* Part III.B.2.

as a prudent [person] ordinarily bestows in acting in his own concerns."⁵³ The following cases demonstrate that this statutory definition is open to broad judicial interpretation.

1. Ordinary Negligence

Under the ordinary negligence approach, California courts have imposed liability on those who act without malice or intent, merely requiring negligence on the part of the actor.⁵⁴ The court in *People v. Farley*⁵⁵ held that a conviction under the anti-cruelty statute requires a showing that the "defendant was negligent in that he intentionally [and voluntarily] did an act . . . from which harm to the animals was reasonably foreseeable."⁵⁶ In *Farley*, the defendant was convicted under California Penal Code section 597(b) for subjecting a horse to "needless suffering and unnecessary cruelty."⁵⁷ The court further announced that a violation of the statute is a general intent crime, not a specific intent crime.⁵⁸ Under the common law, a general intent crime requires that the state prove that the actor "knowingly" committed that act. A defense to a general intent crime is an honest and reasonable mistake of fact. Having to prove this level of intent makes a conviction under section 597(b) more difficult to secure.

2. Criminal Negligence

Recently, other California courts have held that proving contravention of section 597(b) of the California Penal Code requires the presence of criminal negligence.⁵⁹ In *Farley*, the defendant was found guilty of neglecting her animals, but not of criminally neglecting them. Thus her conduct did not amount to a "reckless, gross or culpable departure from the ordinary standard of due care," which the court in *People v. Brian*⁶⁰ held as the standard to prove criminal negligence.⁶¹

In *People v. Speegle*,⁶² the court established a three part test to determine whether the defendant has violated section 597(b) of the California Penal Code.⁶³ In order to prove criminal negligence, the following elements must be proved: 1) the person is responsible for providing care to the animal; 2) the person committed a "grossly negligent" act or omission; and 3) the act or omission endangered the animal's life.⁶⁴ In this case, the jury convicted the defendant of a felony

⁵³ CAL. PENAL CODE § 7 (West 2000).

⁵⁴ FRANCIONE, *supra* note 8, at 121.

⁵⁵ 33 Cal. App. 3d. Supp. 1 (Ct. App. 1973).

⁵⁶ *Id.* at 10.

⁵⁷ *Id.* at 2.

⁵⁸ *Id.* at 10.

⁵⁹ *Id.*

⁶⁰ 110 Cal. App. 3d Supp. 1 (Ct. App. 1980)

⁶¹ *Id.* at 2.

⁶² 53 Cal. App. 4th 1405 (Ct. App. 1997).

⁶³ *Id.* at 1413.

⁶⁴ *Id.*

for animal cruelty after making the specific finding that she subjected the animals to unnecessary suffering.⁶⁵

Although California courts have interpreted the anti-cruelty provisions regarding abusive conduct, their analysis is not exhaustive. Because a finding of "unnecessary suffering" requires a fact-specific inquiry into the circumstances of each case, the question of whether breeding animals to engineer painful genetic mutations qualifies as "unnecessary" under section 597(b) of the California Penal Code remains unclear and controversial. For instance, the *Speegle* court found animal cruelty where no food and water was readily available for the animals. In this case, there was "extensive matting of fur, fleas, eye and ear problems, ear mites, intestinal parasites, no fixed teeth, and mouth disease, and they were under weight, anemic and malnourished."⁶⁶ Many of these factors would not exist in a genetic engineering context, so it is impossible to speculate as to a court's reaction to painful mutations.

IV. SELECTIVE BREEDING AND GENETIC ENGINEERING

Biotechnology, which includes selective breeding and genetic engineering, has been characterized as a "field that is capable of modern day miracles."⁶⁷ The controlled breeding of animals "has produced virtually all the known breeds of domesticated animals, modifying existing animals to maximize their usefulness" to humans.⁶⁸

"Traditionally, animal breeding practices have included selective breeding within species and cross-breeding between closely related species."⁶⁹ Selective breeding allows a breeder to produce specified desired characteristics within animals by breeding those animals that exhibit that specified or dominant trait.⁷⁰ Selective breeding is thereby capable of making significant changes in a given species that easily recur in subsequent generations.⁷¹ However, despite the breeders' attempt to make the "perfect" animal, the outcome of selective breeding is unpredictable. It is uncertain whether the desired trait will definitely appear in the offspring because the breeder cannot select one

⁶⁵ *Id.* at 1409.

⁶⁶ *Id.*

⁶⁷ Carrie F. Walter, *Beyond the Harvard Mouse: Current Patent Practice and the Necessity of Clear Guidelines in Biotechnology Patent Law*, 73 *IND. L.J.* 1025 (1998).

⁶⁸ Blunt, *supra* note 3, at 1380. "Cows have been bred which produce more milk. Dogs have been bred from wolves and refined to provide a variety of services to humans." *Id.* at 1380-81.

⁶⁹ Michael E. Sellers, *Patenting Nonnaturally Occurring, Man-Made Life: A Practical Look at the Economic, Environmental, and Ethical Challenges Facing "Animal Patents"*, 47 *ARK. L. REV.* 269, 270 (1994).

⁷⁰ *Id.*

⁷¹ Blunt, *supra* note 3, at 1382.

trait without transporting other potentially less desirable traits into the animal.⁷²

In an attempt to resolve the undesirable effects of selective breeding, scientists created biotechnology.⁷³ Biotechnology uses living organisms or substances from those organisms to make or modify a product, to improve animals, or to develop microorganisms for specific uses.⁷⁴ Current biotechnology, also known as "genetic engineering or genetic manipulation, is based on the premise that genetic information encoded by DNA and arranged in the form of genes . . . can be manipulated in various ways to achieve certain goals."⁷⁵ "Genetic engineering allows a broader range of modification" and allows specific genetic material to be transferred between species with more predictable results.⁷⁶ Unlike selective breeding, genetic engineering allows the scientist to choose the desired traits, without importing the undesired genes. In addition, genetic engineering reduces the amount of time required to produce animals with the desired traits from years to mere months.⁷⁷ However, similar to selective breeding, genetic engineering does not eliminate the risk that the gene responsible for the desired characteristic might not be passed onto the offspring.⁷⁸ In addition, even if the gene is passed on, there remains the possibility that the chosen offspring will still not exhibit the desired trait.⁷⁹

The process through which the animals are manipulated further limits the success of genetic engineering. "Genetic engineering of animals is . . . carried out by a rather crude method in which several hundred copies of the gene . . . are simply inserted into a fertilized egg."⁸⁰ Despite the apparent good odds, this procedure has a ninety-eight percent failure rate, meaning 9.8 times out of 10, the injected gene fails to insert itself into the host DNA.⁸¹ Consequently, the contributions of genetic engineering are likely to be confined to making relatively minor modifications in pre-existing animals.⁸² Nevertheless, supporters of selective breeding and genetic engineering argue that the procedures will continue to provide humanity with more "palatable food . . .

⁷² Sellers, *supra* note 69, at 270 (citing *Patents and the Constitution: Transgenic Animals: Hearings before the Sub-committee on Courts, Civil Liberties, and the Administration of Justice of the House Committee on the Judiciary 100th Cong., 1st Sess. 34 (1987)*) (statement of Dr. Thomas Wagner, Edison Animal Biotechnology Center).

⁷³ *Id.* at 271.

⁷⁴ *Id.*

⁷⁵ Robert F. Blomquist, *Cloning Endangered Animal Species?*, 32 VAL. U. L. REV. 383, 389-90 (1998).

⁷⁶ Blunt, *supra* note 3, at 1381.

⁷⁷ *Id.*

⁷⁸ *Id.* at 1382.

⁷⁹ *Id.*

⁸⁰ REISS & STRAUGHAN, *supra* note 5, at 177.

⁸¹ *Id.*

⁸² Blunt, *supra* note 3, at 1382.

new and improved medicines, [and] will enhance our aesthetic sensibilities."⁸³

A. *Examples of Biotechnology*

Although biotechnology was originally developed within the scientific research community, its "commercial application was quickly recognized."⁸⁴ Genetically engineered mice are primary models for such human diseases as cystic fibrosis, muscular dystrophy, and various forms of cancers.⁸⁵ Mice are considered excellent experimental animals because they reproduce quickly and can be kept easily, cheaply, and conveniently in the laboratory.⁸⁶ These mice are used to study the progression of human disease and to act as "guinea pigs" for the testing of medications which will eventually be used on humans.⁸⁷

In 1988, the first animal patent was granted to a mouse developed by Phillip Leder and his colleagues at Harvard Medical School.⁸⁸ The Oncomouse was genetically engineered with human genes that make the mice susceptible to developing cancer.⁸⁹ These mice "develop[ed] tumors in a variety of places including mammary tissue, blood, skeletal muscle, the lungs, neck, and groin."⁹⁰ These tumors typically ulcerate and may lead to extreme weight loss.⁹¹ Besides these intended results, some "Oncomice have suffered limb deformities as a side effect of the genetic manipulation."⁹²

Although genetic engineering is perceived by most to be limited to medical laboratories, genetically engineered animals exist elsewhere. A common objective of genetic engineering is to boost the productivity of farm animals. "The largest amount of research has gone into inserting growth genes into fish, pigs, chickens, sheep, and cows."⁹³ The goal of this research is to either cause the altered animals to grow bigger, at an expedited rate, or to create leaner meat.⁹⁴ However, not all of the experiments have proved successful.

One such illustration is the story of the Beltsville Pigs. These pigs were injected with a human growth hormone in order to create leaner pork products for the meat industry.⁹⁵ The results were disastrous.⁹⁶

⁸³ Blomquist, *supra* note 75, at 397.

⁸⁴ Dan L. Burk, *Introduction: A Biotechnology Primer*, 55 U. PITT. L. REV. 611, 621 (1994).

⁸⁵ REISS & STRAUGHAN, *supra* note 5, at 170.

⁸⁶ *Id.* at 169.

⁸⁷ *Id.* at 171.

⁸⁸ *Id.* at 170.

⁸⁹ Cynthia M. Ho, *Building a Better Mousetrap: Patenting Biotechnology in the European Community*, 3 DUKE J. COMP. & INT'L L. 173, 173 (1992).

⁹⁰ REISS & STRAUGHAN, *supra* note 5, at 178.

⁹¹ *Id.*

⁹² *Id.*

⁹³ *Id.* at 174. See generally ANIMALS WITH NOVEL GENES (N. Maclean ed. 1994).

⁹⁴ REISS & STRAUGHAN, *supra* note 5, at 174.

⁹⁵ *Id.*

⁹⁶ *Id.*

The animals became arthritic, impotent, somewhat blind, and developed ulcers.⁹⁷

The Oncomice and Beltsville Pigs are examples of "cases where genetic engineering has undoubtedly led to animal suffering."⁹⁸ The experiments on the mice clearly warned of what types of detrimental effects growth hormones could have on livestock. Yet, experiments with growth hormones continue with similar harmful results. While it is clear that science has caused this suffering, it is unclear whether the law can alleviate it.

B. *The Effect of California's Anti-Cruelty Law on Selective Breeding*

Although selectively breeding animals to produce painful mutations is difficult to prosecute under anti-cruelty statutes, it may be legally punishable. In November 1998, the public was shocked to hear that a feline breeder intentionally bred a litter of kittens to exhibit severely deformed front legs.⁹⁹ The breeder, Vickie Ives Speir, produced these "Twisty Kats" by breeding two polydactyl felines, which carry and exhibit a recessive gene that produces tiny malformed front limbs.¹⁰⁰ This condition is known as radial hypoplasia, in which all or part of the long bone from the elbow to the wrist is missing.¹⁰¹ This genetic mutation leaves the cat with malformed front legs, which forces the kittens to hop like kangaroos.¹⁰²

Speir says the experiment "was designed to breed a cat that would reproduce less readily[,] be less likely to harm birds and other animals . . . and be less likely to run away and become wild."¹⁰³ However, three of the five kittens in the litter were so deformed Speir decided to neuter them.¹⁰⁴ One kitten exhibited severely twisted front legs without a vestigial foot, meaning she had no pads on her wrists.¹⁰⁵ A veterinarian had to wrap her paws with tape in order to prevent her from rubbing sores on her twisted feet as she walked.¹⁰⁶ Another kitten exhibited a severe twist in its right shoulder joint, rendering the right leg virtually useless.¹⁰⁷ The same kitten's left leg had four toes and

⁹⁷ *Id.* Other animals suffered as well. Sheep injected with similar growth hormones suffered from diabetes and high mortality rates. *Id.*

⁹⁸ *Id.* at 177.

⁹⁹ Carlos Tejada & J.C. Conklin, *Mutant Kangaroo-Like Cats Breed Controversy*, ORANGE COUNTY REG., Nov. 29, 1998, at A29. Other examples of the effects of selective breeding in animals exist; however, for the sake of brevity, this comment focuses on the example of the Twisty Cats.

¹⁰⁰ Tejada & Conklin, *supra* note 99. A polydactyl feline is a cat with six toes. WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 1757 (3d ed. 1986).

¹⁰¹ Ranny Green, *Texas Twisty Cats Create the Wrath of Purebred Registries and Breeders*, SEATTLE TIMES, Jan. 10, 1999, at H7.

¹⁰² *Id.*

¹⁰³ Tejada & Conklin, *supra* note 99.

¹⁰⁴ Green, *supra* note 101.

¹⁰⁵ *Id.*

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

was shorter than its right limb.¹⁰⁸ Sadly, these cats “resemble the children crippled by the effects of Thalidomide.”¹⁰⁹ However, despite heavy criticism, Speir maintains her contention that these animals are “fat and happy, sleek and sassy.”¹¹⁰

According to Speir, she has no intention of marketing the mutated kittens, although one kitten was sold to an Oregon family before the controversy erupted.¹¹¹ Although the likelihood of achieving a financial gain is uncertain, these genetic alterations could have economic advantages for breeders in the future. Hopefully, public outcry against deforming mutations will curb the demand for mutated cats. Even if these or similar mutations are determined to be necessary, the foundation to assert that it is legally reasonable remains weak and unattenuated.

Legally, there may be recourse available against Speir and other selective breeders. Section 597(b) of the California Penal Code prohibits subjecting any animal to needless suffering, or inflicting unnecessary cruelty upon the animal.¹¹² Suffering includes the breeder's knowledge, awareness or foreseeability that the animal is 1) susceptible to pain, 2) is in pain, 3) has been in pain, or 4) will be in pain.¹¹³ The definition of pain includes “stress, discomfort, distress, anxiety and fear.”¹¹⁴ Although the extent to which animals feel pain is controversial, an increasing number of philosophers and biologists agree that most mammals are capable of suffering pain.¹¹⁵ The most difficult question remains ambiguous: under the anti-cruelty statute, what level of animal suffering is permissible under “incidental” to human gain but becomes illegal as “needless suffering” or “unnecessary cruelty?”

In order for the prosecutor to convict Speir for her selective breeding under the California Penal Code section 597(b), the prosecutor must first show that Speir intentionally and voluntarily “committed an act from which harm to the animal[] was reasonably foreseeable.”¹¹⁶ Speir voluntarily bred two mutated cats that exhibited radial hypoplasia with the intent that the litter produced would also exhibit the deformity.¹¹⁷ She had already seen the difficulty that the deformity caused the first two cats and how the mutation restricted their movement and ability to function as normal cats, not as kangaroo or “Twisty Kats.” Since she bred these cats for the purpose of perpetuating the

¹⁰⁸ *Id.*

¹⁰⁹ *Id.* (citing a statement made by a representative of The Cat Fanciers Association, one of two largest cat registries in the United States).

¹¹⁰ Maggie Haberman, *Cat Lovers: It's Bad Twist to a Sicko Craze*, N.Y. Post, Nov. 29, 1998, at 9.

¹¹¹ Tejada & Conklin, *supra* note 99.

¹¹² CAL. PENAL CODE § 597(b) (West 1999).

¹¹³ REISS & STRAUGHAN, *supra* note 5, at 176.

¹¹⁴ *Id.*

¹¹⁵ *Id.*

¹¹⁶ *People v. Farley*, 33 Cal. App. 3d Supp. 1, 1 (Ct. App. 1973).

¹¹⁷ See discussion *supra* notes 100-01.

mutated trait, the suffering that she caused the kittens was foreseeable. Under the *Farley* standard,¹¹⁸ the prosecutor could prove intent, voluntariness, and foreseeability. Therefore, selectively breeding the kittens to exhibit radial hypoplasia would satisfy the negligence standard imposed by some courts.¹¹⁹

On the other hand, since courts have also required proof of criminal negligence in certain cases, the prosecutor may have to satisfy the three prong test in *Speegle*.¹²⁰ First, Speir, as an owner and breeder is responsible for providing care for the animal. Second, causing such horrible mutations would likely satisfy the "grossly negligent act" prong. In addition, some animal breeders consider the interference with the essence of the feline species to be a very careless undertaking.¹²¹ Consequently, causing the mutation of a species which will most likely result in a severe deformity that will impair the animal's normal abilities can be considered reckless. Finally, since the deformities result in restricting the cats from functioning normally, their lives were threatened by Speir's acts. According to the *Speegle* court, this analysis would likely satisfy the "grossly negligent" standard required to establish unnecessary suffering.¹²² Satisfying *Speegle*, the prosecutor would be able to secure a conviction under both *mens rea* interpretations of the California Appellate Court.

In addition to selectively breeding cats, bulldogs have been selectively bred to accentuate the exhibition of the protruding lower jaw, which most in society think is a natural characteristic of the animal.¹²³ This painful mutation exists to satisfy humans' ideal of what is aesthetically pleasing. As a result, some bulldogs are born with "such extremely cleft lips and palates that they have trouble eating."¹²⁴

Section 597(b) of the California Penal Code forbids depriving animals of "proper food, drink, or shelter."¹²⁵ This example of selective breeding could likely constitute depriving the animal of necessary food since the mutation selectively bred for by humans has dispossessed the bulldog of the ability to eat. The difficulty in establishing a violation of the anti-cruelty statute is that often what appears to be "cruel and

¹¹⁸ *Farley*, 33 Cal. App. 3d Supp. at 1.

¹¹⁹ See discussion *supra* notes 54-58.

¹²⁰ *People v. Speegle*, 53 Cal. App. 4th 1405 (Ct. App. 1997). See discussion *supra* Part III.B.2.

¹²¹ Green, *supra* note 101. Organizations such as the International Cat Association and the Cat Fanciers Association have expressed concern over the interference with the expression of the "catlike essence." *Id.*

¹²² *Speegle*, 53 Cal. App. 4th at 1413.

¹²³ Tejada & Conklin, *supra* note 99.

¹²⁴ *Id.*

¹²⁵ CAL PENAL CODE § 597(b) (West 2000). Jury instructions have elaborated on the statute stating that failure to provide "proper food, drink, or shelter, in a grossly negligent manner, is guilty of felony cruelty to an animal." *Speegle*, 53 Cal. App. 4th at 1412 (emphasis added).

unusual to some is a thing of beauty to others."¹²⁶ This subjectivity, which is inherently embodied in the word "necessary," makes a violation difficult to establish.¹²⁷ Unfortunately, it seems that many genetically engineered animal mutations, no matter how painful or cruel, can be justified as a "necessity" for humans and, thus, not a violation of the anti-cruelty statute.

C. The Effect of California's Anti-Cruelty Law on Genetic Engineering

Section 599c of the California Penal Code excludes laboratory and farm animals from the protection of the anti-cruelty statute.¹²⁸ Even if this exclusion did not exist, the genetic engineering of Oncomice and the Beltsville Pigs would be valid within the statute under the "needless suffering" provision of section 597(b). The Oncomice provide social benefit to humanity because they help facilitate the study of disease progression and are therefore "necessary" tools to the discovery of a cure. Similarly, had the Beltsville Pig project been successful, it would have provided a comparable benefit making it "necessary" to humans. In light of the public demand for leaner pork, the improved pigs would have resulted in a substantial economic profit for the food industry and, arguably, healthier consumers.¹²⁹

However, the effects of genetic engineering leave considerable room for debate on the issue. Section 597(b) of the California Penal Code is violated when an individual or an organization "intentionally [does] an act from which harm to the animal(s)[is] reasonably foreseeable . . ."¹³⁰ In most instances, genetic engineering harms the animal in a reasonably foreseeable way. Humans who breed animals to exhibit painful and debilitating traits in order to increase food production or facilitate scientific research are blatantly violating California's anti-cruelty statute. However, this application is limited by section 599b of the California Penal Code, which defines cruelty as "every act, omission, or neglect whereby unnecessary or unjustifiable physical pain or suffering is caused."¹³¹ Unfortunately, humans consider medical advancement and economic growth more important than the animal's right to live a comfortable and pain-free existence.¹³² This balancing, inherent in the application of the anti-cruelty statute, allows genetic engineering of painful mutations to continue as long as they derive a human benefit.

¹²⁶ Tejada & Conklin, *supra* note 99 (quoting Richard Finnell, a geneticist at the Texas A&M University school of veterinary medicine).

¹²⁷ See generally Speegle, 53 Cal. App. 4th at 1405-13 (discussing the test to prove criminal negligence under section 597(b) of the California Penal Code).

¹²⁸ CAL. PENAL CODE § 599c (West 1999).

¹²⁹ See discussion *supra* note 94.

¹³⁰ Farley, 33 Cal. App.3d Supp. at 6.

¹³¹ CAL. PENAL CODE § 599b (West 1999).

¹³² Blomquist, *supra* note 75, at 397.

For those animals included in the statute, another approach to secure a conviction for genetic engineering is to pursue a criminal negligence action. However, in order to establish criminal negligence under section 597(b) of the California Penal Code, the genetic engineering "must amount to a reckless, gross or culpable departure from the ordinary standard of due care."¹³³ It is therefore more difficult to establish culpability under criminal negligence than under the foreseeability language of case law interpreting section 597(b).

The standard of care is not easily defined for those who genetically alter animals for food and scientific research because the purpose of the experiment or the mutation is to bring about the painful trait. As long as the researcher conducts his experiment in an acceptable way, according to members of the scientific community, he is adhering to the ordinary standard of care in the field. Therefore, any resultant suffering would likely be the intended outcome of the mutation and therefore deemed necessary. In the event that a mutation results in the unanticipated suffering of the animal, the experiment would likely be viewed as unproductive and discontinued, thereby making any prosecution moot.

V. POLICY SUGGESTIONS

Selective breeding occupies a gray area between a blatant violation of section 597(b) California Penal Code and a mutation that constitutes necessary suffering, which is exempted from the statute. Currently, a large segment of the public disapproves of the genetic engineering of animals.¹³⁴ In response, however, "members of industry have suggested that unless the public is involved in the process of regulating biotechnology, the public will remain suspicious of and resistant to it."¹³⁵

Where the law cannot reach these procedures, policy avenues exist to protect animals through public and industry cooperation. One method to increase regulation and public participation is for each state to establish a central regulatory agency to issue permits for biotechnology.¹³⁶ If the purpose of the breeding is to produce a new or foreign trait in an animal, the breeder would be required to apply for a permit. The application process would involve a detailed description of the procedure and the purpose of the breeding.

Similar to the patent system,¹³⁷ the centralized agency would employ caseworkers who are knowledgeable about the genetic engineering of species. The caseworker would review the application and

¹³³ *People v. Brian*, 110 Cal. App. 3d Supp. 1, 2 (quoting *People v. Peabody*, 46 Cal. App. 3d 43, 48-49 (Ct. App. 1975)).

¹³⁴ Dorothy W. Bisbee, *Preparing for a Blue Revolution: Regulating Environmental Release of Transgenic Fish*, 12 VA. ENVTL. L.J. 625, 682 (1993).

¹³⁵ *Id.*

¹³⁶ *Id.* at 657-59.

¹³⁷ REISS & STRAUGHAN, *supra* note 5, at 170.

render a decision based on whether the trait could potentially cause the animal suffering. This process would be subject to balancing the human-benefit, animal-suffering standard established within the state anti-cruelty statute.¹³⁸ However, the caseworker would have to follow a narrow definition of necessity in rendering his decision on whether the mutation is indeed reasonable. The caseworker's primary responsibilities would be to protect the integrity of the species and ensure its natural survival. Therefore, the animals would be afforded more protection and not automatically discounted as a means to an end for human benefit.

The public could be actively involved, as in other permit review processes,¹³⁹ by requiring the agency to release the permit application information and allow for public comment prior to the issuance of the permit. In addition, the agency could hold scheduled meetings where the public could learn about and debate the proposed mutations, thereby providing a public forum for the discussion of those important issues.

By requiring a detailed public application for a permit to selectively breed or genetically engineer animals, the public would have the ability to protect and potentially stop detrimental mutations. This would allow the public to engage in a cost benefit analysis between the benefit to society and the cost to the animal themselves. This approach directly contrasts the California anti-cruelty statute, which includes within its language an implied balancing test wherein the animal always loses to the human need or want.¹⁴⁰

VI. CONCLUSION

"Biotechnology holds tremendous potential benefits for mankind, and more potential to drastically alter the way we live than any other previous technology."¹⁴¹ Although genetic engineering appears to be protected from the reach of section 597(b) of the California Penal Code, selective breeding may be legally punishable under the rubric of the statute. Since California has one of the most comprehensive anti-cruelty statutes, this conclusion should be of concern to animal protection advocates. The genetic mutation of animals results in painful characteristics. Rapidly becoming a national problem threatening species' integrity and the quality of life of many animals, action must be taken to reduce the deleterious effects of biotechnology.

¹³⁸ FRANCIONE, *supra* note 8, at 129.

¹³⁹ See Clean Air Act of 1977, 42 U.S.C. §§ 7401-7671 (1994); Federal Water Pollution Control Act, 33 U.S.C. §§ 1251-1387 (1994) (more commonly known as the Clean Water Act).

¹⁴⁰ FRANCIONE, *supra* note 8, at 129.

¹⁴¹ David Aboulafia, *Pushing RSBT: How the Law and the Political Process Were Used to Sell Recombinant Bovine Somatotropin to America*, 15 PACE ENVTL. L. REV. 603, 653 (1998).

In order to curb the egocentrism of humans, a central regulatory agency must be established and a permit system enforced. This will regulate and help prevent cruel selective breeding and genetic engineering of domestic and farm animals. Alternatively, if society continues to operate with the constraints and exceptions of only state anti-cruelty laws, the future is bleak; the continued rampant human mutation of existing species will result in the "secular equivalent of blasphemy."¹⁴²

¹⁴² REISS & STRAUGHAN, *supra* note 5, at 183. According to philosopher Alan Holland, we should "be very concerned by any developments which would diminish the general level of freedom of sentient animals." *Id.*

