

PET EUROPEAN FERRÉTS:
A HAZARD TO PUBLIC HEALTH,
SMALL LIVESTOCK AND WILDLIFE



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December 1988

EXECUTIVE SUMMARY

European ferrets are cute and playful, and they are becoming increasingly popular as pets. However, their growing popularity is viewed with alarm by numerous public health entities and animal care organizations.

Ferret play frequently assumes the form of mock attacks, which may result in bites to humans. Serious bites may occur, especially if the animal is surprised or angered. Adults are able to quickly terminate such encounters, and thereby limit injury. However, infants, who often seem to be perceived by ferrets as prey, may suffer severe injury as a result of ferret attacks. Indeed, ferrets sometimes unleash frenzied, rapid-fire bite and slash attacks on infants, usually on their heads and throats, and sometimes inflict hundreds of bites. The animals have been reported to then drink the victim's blood and eat the shredded tissues.

In order to better define the nature and extent of ferret attacks, and in response to requests for information from other state agencies, the California Department of Health Services solicited reports about ferret attacks in early 1986. During the subsequent 2 years, information was obtained on 452 ferret attacks spanning the 10-year period 1978 through 1987. 425 attacks on people were reported from California, Oregon, and Arizona. One hundred of these attacks were from California, where it is illegal to keep ferrets as pets. Also reported from a total of 18 states were 63 unprovoked attacks on infants and small children. Several of these were near fatal attacks. One additional case, a fatal attack, was reported from London, England.

Data from California indicate that the majority of attacks were inflicted by pet ferrets belonging to households other than the victim's.

Twenty-eight percent of infants required plastic and reconstructive surgery; 22 percent of victims required rabies prophylaxis; and 4 percent of victims were known to have been exposed to rabid ferrets.

Ferrets have a propensity for escaping from their principle residence, and escaped ferrets are known to boldly approach wildlife. These ferrets may develop rabies after returning home. Twelve such cases have been reported in the United States.

Ferrets develop feral populations and are especially destructive of poultry and small wild animals such as rabbits. As a result of this well recognized problem, the keeping of ferrets as pets was outlawed in California in 1935. However, data gathered from our survey indicate that greater surveillance and enforcement efforts in this regard may be needed.

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I. INTRODUCTION

The European ferret, Mustela putorius, is cute and playful, and it has become an increasingly popular pet in recent years. However, reports of ferret attacks on people, especially infants, also have increased in recent years. This report briefly describes the history of the European ferret and reports the findings of a survey of ferret attacks conducted by the California Department of Health Services (CDHS).

Developed from the European polecat, Mustela putorius (Volobuev, et al, 1974), European ferrets resemble weasels, except for being larger and stockier. Ferrets--along with the wolverine, weasel, marten, and mink--are members of the family Mustelidae and subfamily Mustelinae. They measure 17 to 22 inches in length and typically weigh between 2 and 6 pounds. Most ferrets are albino or "sable" colored (yellow-buff undercoat overlaid with blackish guard hairs) with a blackish mask, limbs, and tail, although other colors exist. The European ferret should not be confused with the similar but biologically distinct American black-footed ferret, Mustela nigripes, an endangered species of the Great Plains.

Since at least 63 B.C., ferrets have been used by man to drive rabbits and rats from their holes (Owen, 1969). They are preferred for this because of the fierce and relentless nature of their attacks (Everitt, 1897). Only recently have ferrets become popular as household pets not expected to engage in the "ferreting" activities that have characterized the animal's long relationship with man. And while ferrets may be cute and playful, they are frequent biters, sometimes inflicting bites with machine gun rapidity and occasionally tenaciously refusing to let go of their victim. These

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traits have been recently reported in numerous accounts of ferret attacks on human infants, although the propensity of ferrets "to attack and kill children in the cradle" is longstanding (Fennell, 1841).

Our first acquaintance with problems concerning pet ferrets occurred in early 1986, consequent to requests from two other departments of California State Government. The Department of Fish and Game (DFG) and the Department of Food and Agriculture (DFA) asked DHS to define any public health concerns relevant to pet ferrets. DFG had restrictions against entry of pet ferrets into the State (except for an occasional castrated male, an exception since deleted), due to knowledge that escaped ferrets develop feral populations that have a tendency to ravage wildlife and small livestock (e.g., poultry and rabbits).

Since 1986, California's ferret restrictions, along with those of other states, have been under attack by proponents of pet ferrets. Apparently, this is part of a national campaign to popularize and sell the animals (Anonymous, 1986). Ferret proponents claim that: (1) ferrets are domestic, rather than wild, and therefore, they should not be restricted; (2) ferrets bite people less often than dogs, so they are less hazardous; (3) pet ferrets are kept indoors, so there is no danger that they will get rabies from wildlife; and (4) ferrets will die if they escape and are not cared for by man.

In an effort to respond to the DFG and DFA, we reviewed historical and recent literature on ferrets, and we solicited information on ferret attacks on people in order to better define the nature and extent of such events.

In the process, we rediscovered and added to information that contradicts the claims of pet ferret proponents.

II. METHODS

Beginning in early 1986, we requested reports of ferret bites and attacks from all California counties and from two adjacent states. Requests for data from more distant states were also made concerning attacks on infants and rabies in ferrets. The medical literature was reviewed, as was literature regarding the habits of ferrets and their polecat progenitors and the existence of feral ferret populations.

Early in the investigation it became apparent that some animal control personnel and laboratory workers needed help differentiating ferrets and weasels, whereupon a table summarizing differences was devised and provided to these persons.

Other difficulties were experienced gathering and interpreting data. Ferret proponents made widely varying claims about the number of illegal pet ferrets existing in California (ranging from 100,000 to 500,000), and we lacked reliable figures on actual statewide numbers of either captive, stray, or feral ferrets. Owners of illegal ferrets generally were reluctant to report ferret attacks out of fear of prosecution or loss of their animals, and some bitten friends of owners were similarly reluctant. Most biting ferrets appeared to be strays or animals that had escaped or been released after biting their owners. Available reports, which were usually retrospective, generally lacked uniformity, and reflected varying degrees of effort in documenting details of the incident. Spectacular incidents,

including those from rabid ferrets or involving infant maulings, seemed more likely to be reported.

Rabies diagnostic tests were usually performed using the fluorescent rabies antibody test and mouse inoculation test (Johnson, 1979), although the monoclonal antibody technique (Wiktor and Koprowski, 1978) was used in some instances. When performed, the statistical significance of data associations were determined using the chi-square test, four-fold table method with Yates' correction.

III. RESULTS

Altogether, information was obtained on a total of 452 ferret attacks spanning the 10-year period 1978 through 1987. This included 64 unprovoked attacks on infants and young children and 388 attacks on older children and adults. The nature and details of these attacks are described below.

A. Unprovoked Attacks on Infants

Reports were received from 18 states and London, England, on unprovoked attacks on infants and young children (Tables 1 and 2). Thirty seven of these were from California (11), Arizona (17), and Oregon (9). All but one of the infants and small children were either reported to be, or appeared to be from bite report descriptions, three years of age or younger. One 6-year old is included among these cases because, upon being forced to release its hold, the ferret that seized the cheek of this sleeping girl ran and jumped into the crib of a subsequently rescued 16-month-old male sibling, each time biting the rescuing parent. The one fatal case was reported from London, although

several of the other attacks were severe enough so as to nearly be fatal.

The specific ages of the victims were reported for 50 of these youngsters, and ranged from 2 days to 3 years, with a median of 6 months. Several of the most severely mauled infants were only a few weeks old.

Gender was reported for 46 of the 64 infants; 24 (52 percent) were females.

It appeared that as many as 58 (91 percent) of the victims were attacked while sleeping or lying down. Of the remaining six infants, one was bitten in the face by a rabid ferret from a pet shop. Another was attacked on the wrist during a diaper change. A third was playing on the floor when bitten on its scalp. Two infants were outdoors when stray ferrets attacked their feet. The last one was sitting on the toilet when the ferret jumped onto her face, inflicted multiple wounds, and then refused to open its jaws, requiring that it be pried loose.

Wound sites were reported for 62 of the 63 injured infants. (The 64th attack was blocked by a parent, so that the infant was not actually harmed.) Thirty (48 percent) infants suffered head wounds only; 11 (18 percent) received head or neck and limb wounds; 3 (5 percent) were attacked on the neck only; and 18 (29 percent) were bitten just on their limbs or appendages. One infant was bitten on the end of his penis. Overall, 44 (71 percent) of the infants were bitten on the head or neck (plus limbs in 11 of these cases), whereas 18 (29 percent) were bitten only on limbs or appendages. These data suggest

that ferrets have a predilection for biting infants and small children on the head and/or neck.

The sites of the head and neck wounds were identified in the reports (involving some overlap) as follows: head, 6; face, 23; cheek, 7; eyelids, eyes, and conjunctiva, 5; lips or mouth, 4; scalp, 5; forehead, 2; nose, 1; ears, 3; neck, 3.

Bites were usually described as consisting of multiple puncture wounds and lacerations, sometimes involving hundreds of bites per victim and leaving macerated tissues that resembled bloody ground beef. In 62 reports containing relevant information, 3 (5 percent) victims received a single bite or laceration, 14 (23 percent) were reported only as "bitten," 44 (71 percent) received multiple bites and/or lacerations, and 1 (2 percent) had his ear eaten off. Ears were also bitten on 3 of the victims that received multiple facial bites, one of these having 40 percent of both ears eaten.

The greatest reported numbers of multiple facial bites per victim were as follows: "hundreds," two; more than 200, one; 100, one; 80, one; 50, one; 40, one; and 20, one. The number of facial bites was not reported for one infant that exsanguinated and another that nearly bled to death. One 29-day-old infant lost her entire nose, and most of her eyelids, lips, and other facial tissues; her hands were also chewed. A 2-day-old infant with some 80 puncture wounds on her head was reported by the mother as being "flipped over like a piece of meat" by a pet ferret that had its teeth fixed in the baby's scalp. In at least three

instances, the jaws of the biting ferret had to be pried open to release the victim.

Data on the characteristics of the ferrets attacking the infants are given in terms of numbers of persons attacked to underscore the assault perspective and to avoid confusion, because in two instances two persons were attacked by one ferret, and in two other instances one person was attacked by two ferrets. In one of the latter instances, ferret sex and age data were available and added to the appropriate columns of Table 2, resulting in a greater total number of ferrets (65) than assaulted infants (64). Seven (39 percent) of the ferrets whose ages were reported were less than one year old. The genders of the attacking ferrets were evenly divided between males and females, although this information was reported for only 14 animals. At least 8 of the 64 attacks were by unneutered animals.

Data on the apparent ownership of the attacking animal were available for 48 of the 65 ferrets. These data indicated that 16 (33 percent) attacks were from ferrets of the victim's household, whereas 32 (67 percent) either had other known owners (25) or were strays (7). Of note, none of the 32 animals hesitated to approach people, suggesting that they were previously or currently pets. Six of the seven strays were friendly and had just been taken as household pets. Twenty-one of the 25 known owners were described as babysitters (6), visitors (7), hosts (5), and vendors (3) who had just supplied the ferrets. One (4 percent) of the 25 attacking animals that were tested for rabies was rabid.

B. Attacks on Persons in California

Data were reported on 100 ferret attacks in California (Table 3); this included 11 of the 64 infants reported above.

The age of the victim was reported in 87 cases. Fourteen (16 percent) were 3 years old or younger (3 of these were not unprovoked attacks), 9 (10 percent) were >3 to 10 years old, 13 (15 percent) were >10 to 20 years old, and 51 (59 percent) were older than 20 years. The oldest person was 70 years.

The gender of the victims were approximately evenly divided, and similar in all age groups except for there being four males and ten females three years old or younger.

Eleven (79 percent) of the 14 infants or children 3 years old or younger were attacked without provocation, 10 being in bed or asleep at the time of attack. A stray or feral ferret was found outdoors near a screaming three-year-old child whose feet and hand had been bitten. Three (19 percent) attacks occurred when handling or playing with stray or pet ferrets.

According to the reported data, only 8 of 66 (12 percent) victims over 3 years of age were attacked without provocation. Illustrative of these cases was that of a seven-year-old girl who was bitten on the leg by a stray ferret that rushed from some bushes immediately after the girl had gotten out of an automobile. It had to be driven away, but it was later captured, killed, and tested for rabies.

Seven adults were reported to have been attacked without provocation. The ankle of one was bitten, penetrating leather boots, by a feral or stray ferret. Another person's finger was bitten as he

tried to put trash into a dumpster, where the animal was hiding. Another man was bitten on his foot as he stepped onto his porch. A woman was bitten on the ankle by a stray ferret hiding in her garage. The feet and toes of two adults were bitten by pet ferrets; another adult was bitten several times in the Achilles' tendon by a stray ferret that had scratched on his front door. Two other feral or stray ferrets climbed onto persons and subsequently bit them. It was sometimes not clear from the reports whether the animals were friendly or aggressive.

The remaining 58 (88 percent) victims over 3 years of age, and 6 of the 13 persons of unreported age, facilitated the attacks by handling, feeding, or in some way interacting with or provoking the animal. At least ten animal control officers were bitten trying to manipulate or care for ferrets.

The following "victim-facilitated" or provoked cases are noteworthy:

- o An 18-year-old girl was bitten on her chin by a ferret being offered for sale in a shopping mall by an unknown free-lance vendor; he left with the ferret immediately after the incident. Rabies prophylaxis was discussed with the patient, but she was lost to follow up.
- o Reaching through the window of an auto parked in a shopping mall lot, a 23-year-old woman was bitten as she tried to pet a ferret held by its owner. The owner immediately drove away with the ferret.

- o A 12-year-old boy was carrying his pet ferret in his partially opened jacket; the boy uttered a loud whistle, whereupon the ferret bit the boy's chest and neck.
- o Three adults were exposed to a recaptured pet ferret that subsequently developed rabies. Evidently, the infection was acquired from a skunk.

No report of the circumstances attendant to the attack were given for 14 cases.

Eight (57 percent) of the California infants and children aged 3 or younger were bitten on the head (5), neck (2), or face and hands (1). The remainder (six) were bitten only on the limbs. All attacks involving the head or neck and three involving the limbs only were unprovoked. Sites of head wounds were specifically reported (with some overlap) as follows: head, two; face, three; cheek, one; and lips, one. The wounds of eight infants were described as multiple punctures or lacerations; two were described as single bites or lacerations; and four were reported as just "bitten." One 10-month-old infant had 20 lacerations and punctures on the right side of her neck. A two-year-old had four bites on the right side of her neck. A 5-month-old girl had 50 puncture wounds on her face. All the victim-facilitated or provoked attacks consisted of only single bites or scratches.

Medical treatment reports were received on only 5 of the 14 infants. For these cases, plastic and reconstructive surgery was required for one. Rabies prophylaxis was also administered to one.

Among the older children and adults, three (five percent) were bitten on the head or neck. These were all victim-facilitated or provoked. As many as ten of the limb bites were unprovoked, as described above. Bites on limbs were usually singular.

For bites on the extremities, the wound sites were: finger, 22 (2 multiple); hand, 19 (4 multiple); wrist, 4; elbow, 1; arm, 1; toe, 3; foot, 2 (1 ferret bit both toe and foot); ankle, 2; Achilles' tendon area, 1; unreported, 13. Wounds were described as "bitten" in 37 cases; "bite" in 12 (5 multiple); "puncture" in 12 (6 multiple); "laceration" in 4 (1 multiple); "scratch" in 2; preexistent scratches contaminated by saliva of a sick ferret in 1; and unknown in 2. Overall, about 22 percent of reports indicated multiple wounds.

Relevant wound data were provided for only 3 of the 13 victims of unreported age. Two received finger bites (one multiple), and one received multiple hand bites.

Medical treatment data were provided for only 27 of the 73 (37 percent) victims over 3 years of age. Six (22 percent) of these persons received rabies prophylaxis.

As above, reported data on ferrets that attacked persons over three years of age are given here by numbers of persons attacked to facilitate evaluation from the attack perspective and to avoid confusion due to multiple bite victims per ferret or vice-versa. Although most ferrets bit only one victim, six ferrets bit two victims each, and three ferrets bit three victims each.

Twenty-seven (87 percent) of the attacks where information was reported, were by ferrets one year of age or older. Twenty-five (68

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percent) were by male ferrets. Three (21 percent) attacks, out of 14 having data concerning reproductive intactness, were from neutered ferrets. Of the 42 reports containing relevant information, all the attacks were inflicted by ferrets that lacked state licenses.

Fifty-one (55 percent) of the 92 animals for which information was available were identified as pets; the remaining 41 (45 percent) were presumed to be stray or feral animals. Of the 51 attacks by ferrets reported to be pets, 48 (94 percent) were from ferrets with identified owners--14 (29 percent) of these were from pets owned by the victim's family, and 34 (71 percent) had other owners.

Three (four percent) of the bites by ferrets that were tested for rabies were inflicted by a rabid ferret.

C. Attacks on Persons in California, Oregon, and Arizona

The Department's request for data in early 1986 resulted in maximal California reports for that and the two adjacent years, whereas data received from Oregon and Arizona were nearly all retrospective, being largely pre-1986. Moreover, Oregon data were unavailable for 1980 and 1984, and that state's ferret bite reporting system had been rendered largely nonfunctional in 1984. Thus, data from the three states are both incomplete and somewhat staggered temporally (Table 4). Altogether, 100 reports were available from California, 76 from Oregon, and 249 from Arizona, for a total of 425 attacks for the 3 states, spanning the 10-year period 1978-1987. Most of the reported incidents occurred between 1980 and 1985.

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Data collection was not uniform for the three states. However, data on ages of victims were compared as closely as report categories and judgment permitted (Table 5). Persons 4 years old or younger comprised 11 to 16 percent of victims, averaging 13 percent.

Gross estimates of annual rates of ferret attacks on people were made for the three states (Table 6). Near maximal reported numbers of attacks per annum were assumed to be typical (since reporting is almost certainly more likely to be deficient than inflated), and were divided by the State's approximate population to obtain a rough estimate of the number of ferret attacks per million human residents. Of note, while the Arizona reports came only from Maricopa and Pima counties, these two counties contain most of Arizona's population.

The estimated rates suggest that ferret attacks, per one million human residents, were 1 in California, 7.4 in Oregon, and 25 in Arizona (Table 6). Data from Oregon indicated that 36 percent of their attacks were from stray or feral ferrets; 45 percent of California attacks were from stray or feral ferrets.

D. Ferret Rabies in the United States ✓

Twelve cases of ferret rabies have been documented in the United States, six of them since 1985 (Table 7). It is either known or reasonably assumed that essentially all of these ferrets had been bitten by rabid wild animals. (It is possible that one ferret may have developed a live rabies virus vaccine infection. Another ferret apparently was infected by a 13th rabid ferret to which it had been bred.) One ferret fought a raccoon in an area noted for raccoon rabies shortly before it developed the disease. In two incidents, one of

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which was in California, escaped ferrets developed rabies shortly after they were recaptured.

Rabies-infected ferrets also have been purchased in pet shops. In one case reported to us, a child was bitten in the face by a rabid ferret purchased at a pet shop. In another case, a ferret died of rabies a month after its purchase from a pet shop.

E. Feral Ferrets in California

According to information provided by DFG, there is scant evidence of feral ferret populations in California, at present. However, several years ago, a ferret kitten was found near its mother after the adult had been hit by an automobile in Kern County. It was concluded that the female had bred in the area. Since then, a male and female pair of ferrets have been live-trapped at Folsom Lake (Placer County), and another pair was trapped in Sonoma County. Sightings of individual ferrets, made by knowledgeable and reliable observers, also have been reported from Sonoma, Napa, Riverside, and San Francisco counties. In the latter instance, the ferret was emerging from a burrow at Candlestick Point Recreation Area.

Animal control personnel and county public health laboratory directors in Northern California frequently report observations and captures of single ferrets. It is usually impossible to distinguish escaped or released pets from feral animals, although the former seem more likely to be observed in populated areas. Similarly, ferrets that approach people, sometimes inflicting bites as persons pet them, are likely to be stray pets.

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At this time, the available information suggests that if feral ferret populations exist in California, they may not yet be beyond control. It must be emphasized, though, that feral ferrets abound in other states with climates far more severe than occurs in most of California, and that California's poultry producing and game bird producing areas provide habitats especially attractive to ferrets.

IV. DISCUSSION

A. History of Ferret Selective Breeding and Interaction With Man

Ferrets were developed by man from polecats, which have a reputation for being extremely bloodthirsty, killing far more than they can devour and indiscriminately attacking any and all animals within range (Johnston, 1903). In addition to killing native animals, polecats also have been reported to ravage small livestock, such as rabbits and poultry. Larger animals also may be attacked. For example, it has been reported that 16 turkeys were killed during a single night by one polecat and 10 ducks by another, with each victim being left with a hole in its neck (Bell, 1837). Feral ferrets behave as polecats (Corbet and Ovenden, 1980), and have been known to engage in wholesale slaughtering of livestock (Everitt, 1897; Dolensek and Burn, 1976; Harding, 1915).

The savage characteristics of polecats were highly valued and emphasized in man's selective breeding and development of ferrets for killing rats and rabbits or for driving them from their holes so they could be killed by men or dogs for sport or pest control (Everitt,

1897). Unusually large and persistent fighters also have been bred to attack skunks and minks (Harding, 1915).

In addition to being developed to be bold, man selectively bred ferrets to be unafraid of humans in order to get the animals to return on command and to facilitate handling them (Thomas, 1946). Thus, unlike polecats, ferrets lack an innate fear of man (Poole, 1972). An interesting anecdote in this regard involved a case of four wild ferrets from a reproducing feral population in Washington State that were found feeding on the carcass of a cow when a veterinarian arrived to autopsy the animal. The ferrets refused to leave and continued to chew on the carcass throughout the autopsy (Porter, 1987).

Although ferrets have been selectively bred over the centuries, one should not presume that man's development of ferrets from polecats means that the ferret has undergone isolation from and differentiation from polecats for thousands of years. On the contrary, ferret breeders have periodically crossed ferrets with polecats to produce the polecat-ferret or fitch-ferret coat color pattern (Fennell, 1841; Matthews, 1968; Corbet and Southern, 1977).

Training of ferrets, as well as those who handle them, is required in order to prevent the animals from biting or attacking their handlers. Ferrets that have undergone training not to bite persons find a near parallel with other wild species that have received similar rearing or training. All such species are characterized by a relatively high frequency of biting compared to dogs, and some (e.g., wolves, wolf-dog hybrids, coyotes, raccoons, and ocelots) have killed human infants and/or eaten their tissues (Constantine, 1986). However,

ferrets seem to present a somewhat different hazard, because, like pit bulls, they have been bred not only to be instinctively unafraid of man but also to be especially ferocious and tenacious against intended victims. Whereas trained ferrets may exercise restraint in biting adults, human infants may be regarded as prey to be killed and eaten. That ferrets are capable of restraining this behavior may be inferred from the data showing that these attacks have almost always occurred when adults were absent from small children. It is as if the animal waited until the adults left before attacking the hapless infant. Add to this the adeptness with which ferrets escape cages, and all the circumstances are present for tragedy to occur, as has been reported. Thus, it appears as if training of ferrets may not be entirely effective in preventing attacks on infants.

For several reasons, infants may be somewhat irresistible to ferrets due to odors, sounds, taste, and actions resembling that of their natural prey. Ferrets encountering a nest of suckling rabbits underground will typically kill and eat them all, regardless of training (Brodie, 1978). Sucking or squeaking sounds that resemble utterances of rabbits in pain stimulate attacks by many kinds of predators, including ferrets. We believe that sounds made by human infants are among stimuli that trigger predatory ferret behavior.

Bell (1837) cautioned persons against confidence in "the tameness of this sanguinary and deceitful animal" that had on multiple occasions attacked infants through "the resuscitation of its inherent though dormant propensity for blood." He declared:

"The Ferret exhibits a considerable degree of tameness, but without any discriminating attachment: it is in fact nothing more than the indifference and absence of fear and anger, which are the result of hereditary dependence upon and association with mankind. It will allow itself to be handled and played with, and in some cases may be suffered to run about the house with impunity, if it is carefully watched and well fed. But all this appearance of innocence and good temper is deceptive; and the Ferret, when tempted by opportunity, and excited by the smell or taste of blood, becomes as savage, and as indiscriminate in its attacks, as the Polecat itself."

Man's development of ferrets to be a more ferocious and effective predator than its polecat progenitor cannot be construed to be a form of domestication like that of animals designed to be pets, beasts of burden, or food animals. Indeed, even ferret proponents have not regarded ferrets as domestic animals; they have categorized them as less than domestic. Everitt (1897) quoted legal opinion that ferrets are not domestic animals, in contrast to animals generally acknowledged to be domestic. At a loss for adequate terminology, Harding (1915) stated that ferrets "are capable of only partial domestication," cautioning that "they never cease to be dangerous if not carefully watched, especially where infants are within their reach."

B. Problems Consequent to Pet Ferret Ownership

Ferrets are purchased as pets because they are cute and playful. Owners usually give them the run of the house in order to play with them and enjoy their antics, although many owners confine them to indoor cages at night because they normally are most active at night. However, ferrets are very adept at escaping cages and households (e.g., often through clothes dryer vents), and they can be difficult to find and recapture. Upon realization that one's pet ferret is missing, a

major promoter of pet ferrets advises organizing a search of surrounding houses (Morton and Morton, 1985). Thus, if one owns a ferret, one can expect difficulties confining the animal and interaction of the animal with neighbors.

Ferrets become especially bite prone when they reach about three months of age. Ferret play includes mock attacks, which in young animals are merely practice for adult behavior (Biben, 1982). People, particularly infants and strangers, may react to ferrets in a manner that encourages or exacerbates attack behavior.

Attacks other than mock attacks can have a variety of causes (Fennell, 1841; Holz, 1982; Moody et al., 1985; Morton and Morton, 1985; Roberts, 1977; Ryland et al., 1983; Wellstead, 1982; Willis and Barrow, 1971; Winsted, 1981). For example, circumstances observed to precede attacks include the following:

- TRUE 1. Normal behavior. (As soon as young animals open their eyes, they will treat as food anything put near their mouths until they learn better.)
- TRUE 2. Lack of training not to bite. (Such training must be initiated very early, although some animals seem refractory to training, and training is not entirely successful in any case.)
- ? 3. A new environment.
- ? 4. A "nervous disposition" in the ferret.
- ? 5. Anxiety or fear, i.e., anything that upsets the animal.

- ? 6. Hunger. (Ferrets require a constant supply of food having a high content of animal protein because food transit time is only three hours.)
- FALSE 7. The smell or taste of blood.
- ? 8. Attempts to confine or manipulate the ferret against its will.
- ? 9. Quick movements or sounds that startle the animal.
- ~~the~~ ? 10. Pain.
- TRUE 11. "Natural aggressiveness" in uncastrated males.
- ? 12. "Natural aggressiveness" in females from one week before parturition through lactation.
- FALSE 13. Mistaking as food fingers smeared with meat juices.
- FALSE 14. Anatomic parts, movements, or sounds that simulate the animal's natural prey.
- FALSE 15. Illness or disease (e.g., rabies).

It is unclear why ferrets bite and sometimes hang on tenaciously to faces or limbs of persons who are sleeping or merely looking at, holding, or petting them. Likewise, it is unclear why these animals sometimes run to and reportedly viciously attack people on their lower limbs. Tenacious holding of the neck, with simultaneous blood drinking, has been reported in young ferrets upon the very first encounter with natural prey, suggesting that this is instinctive behavior (Everitt, 1897). Perhaps, in some instances, unrecognized human activity has a triggering effect on such instinctive behavior. Stimuli that apparently incite ferrets to attack sleeping infants may include some of the previously mentioned circumstances or may be due to identification of infants as prey.

There is no
NATURAL prey.
Domestic Ferrets
are CAPTIVE
produced AND eat
COMMERCIAL PET
FOODS which
do NOT EXIST
IN THE "WILD."
NEITHER DO THE
FERRETS!

Bites to hands of persons who handle ferrets can be decreased by heeding commonly espoused advice to wear gloves when handling these animals (Rowlands, 1967; Willis and Barrow, 1971; Roberts, 1977; Winsted, 1981; Wellstead, 1982; Ryland et al., 1983), although holding a ferret with leather gloves heavy enough to fully protect against the animal's canine teeth may injure the animal (Hammond and Chesterman, 1972).

There are additional notable problems peculiar to ferret ownership. Ferrets have anal sacs and other cutaneous glands in the perianal skin that emit an obnoxious smelling substance, the production of which can be decreased but not entirely eliminated by "descenting" surgery similar to that performed on skunks (Creed and Kainer, 1981). Frequent bathing, especially of males, that removes greasiness from the coat also decreases the odor. Surgical neutering is said by some persons to lessen the tendency to bite, but others claim it does not help. Female ferrets are seasonally polyestrous, exhibiting signs of estrus from spring to fall, and they are induced ovulators. Unless they are bred or neutered, half of females will die from hypoplastic anemia (Ryland et al, 1983). These things, combined with the relatively short life span of ferrets (usually about half that of dogs or cats) are further reasons why ferrets would appear to be less desirable pets than other common pet species.

Given the foregoing kinds of difficulties peculiar to ferret ownership, especially biting, many owners try to rid themselves of the animals by (1) returning them to pet shops or other source of

acquisition, (2) selling or giving them away, (3) turning them loose, (4) turning them in to animal control authorities for destruction, often accompanied with requests for rabies tests, and (5) not endeavoring to recover escaped animals. Of course, once loosed into nature, ferrets are likely to interact with wild animals, and they may become infected with rabies. Whether or not they get rabies, under these circumstances they may bite other persons, including those they befriend, necessitating antirabies prophylaxis for the bite victim. In addition, released pets may initiate feral populations.

Despite the difficulties of pet ferret ownership, many owners are exceedingly attached to their animals. For example, several ferret owners with extensively assaulted infant children apparently have seemed to place the welfare of their ferrets above that of their children, taking actions to prevent destruction of their ferrets that is required to perform rabies tests. In one recent case, a mother whose ferret had savagely attacked her newborn infant and attacked the face of a neighbor's infant succeeded in preventing destruction of the ferret, reportedly declaring she would rather destroy the child, because she had possessed the ferret for a longer time.

C. Rabies in Pet Ferrets

Twelve cases of rabies in pet ferrets are known to have occurred in the United States since 1958 (Table 7), ten of them in the last seven years. During this period great effort has been made by ferret proponents to market ferrets as pets. Available reports indicate that 22 percent of Californians who were bitten by ferrets underwent rabies

prophylaxis. Other state's reports that were received indicate that the same proportion (22 percent) of assaulted infants and young children were given rabies prophylaxis. In a number of cases, though, the biting ferret was not available to be tested, making it necessary to administer rabies prophylaxis.

No rabies vaccine trials have been performed in ferrets to justify licensing any product for that purpose; thus, no rabies vaccine can be guaranteed to be effective in ferrets. Moreover, some live virus rabies vaccines are known to produce rabies infections at unknown frequencies in wild carnivores, so live rabies virus vaccines should not be used in ferrets. False security could arise from use of killed vaccines not licensed for use in ferrets, generating health hazards and possible legal problems. It is conceivable that trials with killed virus vaccines will be done and a product eventually approved for use in these animals. However, rabies vaccines used for dogs or cats, although tested and licensed, sometimes fail, especially when the vaccinated animal is permitted to run free and contact skunks or other wild animals that may transmit overwhelming doses of virus. Moreover, vaccines usually are prepared from laboratory strains of the virus, and these stock are known to differ somewhat from the many other strains found in wild animals, diminishing the vaccine's effectiveness in some instances (World Health Organization Expert Committee on Rabies, 1984). Given the adeptness with which ferrets escape and/or are released by their owners, thereby allowing contact with wildlife, vaccinated ferrets and their bites would still have to be regarded as potentially hazardous from a rabies standpoint. This concern is

especially significant in light of the number of reported ferret bites inflicted by stray or feral animals.

A ferret that bites should be killed and tested for rabies as quickly as possible to determine whether the bite victim has been exposed to rabies (Centers for Disease Control, 1986b). However, because there is no optional grace period, it is probably prudent to initiate rabies prophylaxis immediately after the bite and later discontinue it if the animal proves not to be rabid (Public Health Service Advisory Committee on Immunization Practices, 1984). This is especially so for facial bites. To merely quarantine the animal and wait for it to develop rabies signs is problematic, for the maximal interval between an infectious bite and the advent of rabies signs in ferrets is unknown. Of interest, though, this interval is known to be as long as eight days in the striped skunk, another mustelid (Parker, 1975). Also of concern, signs of rabies are little known in ferrets, and as such they may not be recognized. These signs are known to vary markedly in different species according to the viral strain and the dose received (Constantine, 1967).

The claim that pet ferrets cannot get rabies because they are kept indoors is unsubstantiated, and is undermined by the frequency that these animals escape the home and by the details of known ferret rabies cases. Rabid ferrets have been encountered at the breeding or wholesale source, the pet shop or retail source, in the home, and in the wilds. It appears, then, that rabid ferrets may occur any place at any time.

D. Ferret Attacks According to Age of Victim

As tabulated in Tables 2 and 3, the circumstances attendant to ferret attacks and the types of wounds inflicted differ according to the age of the person attacked. Infants aged three years or younger usually were attacked without provocation by ferrets known to be pets, and they generally were attacked when asleep or lying down. The wounds in these cases typically consisted of multiple bites or lacerations, usually to the head and/or neck. In contrast, older children and adults usually provoked or otherwise prompted the attack. About half of the attacks on these persons involved stray or feral animals, with the victim being awake and ambulatory at the time of attack. The wounds in these cases typically consisted of single bites inflicted on the extremities. The differences in circumstances attendant to bites on infants and older persons and the differences in the anatomic site and extensiveness of the wounds were significant ($p < 0.01$). In addition, the data suggested that older persons were more likely to be attacked by male ferrets, while attacks on infants involved male and female animals equally ($p < 0.05$).

The foregoing differences seem explainable largely on the basis of opportunity. A sleeping or reclining infant is far more susceptible to repetitive attack than are older, ambulatory persons. Likewise, infants are exposed primarily to pet animals, rather than strays. Similarly, male ferrets are reported to be more aggressive than females (Lavers, 1973; Biben, 1982), and probably are more inclined to approach or attack ambulatory persons.

Several cases occurring outside of California are worth describing because of their unusual circumstances that contrast with the above noted general patterns of attack according to the victim's age. For example, a sleeping six-year-old Oregon girl was bitten on the face beneath her eye while sleeping (Williams, 1986a). A 17-year-old New York girl was also bitten on the face under similar circumstances (Orr, 1986). Whereas adults usually have no problem promptly terminating attacks, it is not always possible to do so. For example, an animal shelter employee in Nevada opened the door to a previously playful ferret's cage in order to move the animal to another cage, and the animal quickly ran up his arm, over his shoulders, and down the other arm, inflicting 20-30 bites along the way (Coffey, 1985b; Boneck, 1988). This was similar to an attack on a New York infant, in which case bites were inflicted at about one-fourth-inch intervals all along the arm. Two other cases of note involved a two-year-old Oregon boy who was bitten on the end of his penis while sleeping (Williams, 1986a), and a seven-year-old Arizona boy who was similarly bitten (Wright, 1986).

Another noteworthy incident involved a ferret sitting alongside a road at night. The victims, who were driving by, stopped and opened the front door of their car, whereupon the ferret hopped into the car and onto the front seat between the driver and his wife, who was bitten when she tried to pet the animal. The ferret would not release its bite grip, and the husband was bitten when he tried to force its release. Subsequently, he delivered the ferret to an animal shelter (Williams, 1986a).

E. Ferrets Apparently Perceive Human Infants as Prey

Observations consistent with the notion that ferrets perceive human infants as prey include the small size and helplessness of the victims, the anatomical locations of and extensiveness of inflicted wounds, and ferret ingestion of the tissues of live, human infants. Victim odors, sounds, and reactions to the initial bites may play a role, as may the taste of blood and flesh. The smell or taste of blood is said to stimulate savage and indiscriminate attacks by ferrets (Fennell, 1841).

Our data show that attacks were more frequently reported in infants less than a year of age, decreasing with increasing infant age and size. Apfelbach and Wester (1977) reported that ferrets are inhibited from attacking perceived prey as the latter approach more than double the size of the ferret. The same authors reported that when hunting, ferrets appear to innately aim at the most anterior part of the prey, which is consistent with the extensive head and neck attacks involving infants.

That the attractiveness of infants as victims is not due solely to their small size is suggested by a 1987 New York incident wherein a blind, seven-year-old spina bifida victim received numerous leg bites and scratches during a nocturnal attack by two pet ferrets (Abelseth, 1987). The inability of the victim to terminate an attack may encourage more extensive damage.

Suckling rabbits are among favored ferret foods in the wild, and certain characteristics (e.g., odors or sounds) shared by suckling humans may make the latter especially attractive "prey." As previously noted, certain sounds have been observed to trigger ferret attacks, with persons having unintentionally triggered seemingly instinctive attacks on themselves by ferrets. For example, while lying down outside a rabbit burrow, a ferret handler made squeaking and sucking sounds resembling utterances made by rabbits in pain. This successfully called his ferret out of the burrow, but the animal fixed its teeth firmly in the man's cheek after rushing from the burrow (Everitt, 1897). The same author referred to a ferret that nearly bit off its trainer's ear lobe. It also seems that ferret attacks may be triggered by certain sucking or squeaking sounds, including infants sucking on milk bottle nipples or pacifiers. However, the association of such sounds with prey may have to be learned in nature and, thus, may not apply to animals reared in captivity.

Movements of various kinds are also known to elicit attacks. For example, the carcass of a dead rabbit may be ignored by a ferret but it has been observed to be attacked if it is shaken as if it were alive (Thomas, 1946). Movements of infants may also serve as triggers for attacks, especially quick or jerky movements.

Ferrets and polecats seem to display "frenzy" behavior, such as occurs with sharks, during some attacks. In such situations they seem to become detached from any semblance of reason, functioning on a purely instinctive level. This may have survival value in nature. Illustrative of such behavior are reports of mass killings of chickens,

ducks, turkeys, and rabbits in poultry houses or rabbit hutches. In these cases, ferrets have reportedly killed all animals present, although eating relatively little of the prey. In nature, ferrets store small game food (e.g., frogs or fish) in their dens, but they are generally unable to transport or store great numbers of larger prey such as chickens or rabbits.

Also supportive of the notion of instinctive "ferret frenzy" is the seemingly unexplainable situation of a ferret seizing a familiar and friendly adult person with its teeth and then refusing to let go, especially when the attack is triggered by simulated utterances of a rabbit in pain. Of interest, polecats commonly bite prey with such a "death grip," although young, inexperienced polecats may grip the wrong site--perhaps due to their relatively poor eyesight (Southern, 1964). Similar simulated sounds have been used by hunters to trigger charges by large wild canids and felids. It is possible, then, that with suitable stimulation, the urge for ferrets to attack infants may be guided by instinctive behavior, especially when the inhibitory presence of adults is removed.

A brief review of methods of ferret attacks on natural prey is relevant here. Upon recognizing prey, polecats and ferrets utilize typical musteline attack methods. The attacking animal leaps on the prey animal, clutching the victim's body with the forelimbs, and killing it with either a bite on the occipital region, which usually crushes the back of the skull (Jennison, 1927; Apfelbach and Wester, 1977), or by a bite of the neck, which opens major blood vessels of

larger or long-necked prey (Ewer, 1973). The "death grip" to the head or neck is concomitant with violent shaking of the prey by polecats (Southern, 1964). The neck bite, often used to kill rabbit sucklings, is said to be instinctive but only partially developed in young polecats, requiring perfection by practice (Corbet and Southern, 1977). This seems to be accomplished, in part, by mock neck biting during play and by sustained neck biting during intraspecies combat (Biben, 1982).

A further possible explanation of the repetitive and mutilating nature of ferret attacks on infants is found in the older literature on ferrets. That is, ferrets may inflict hundreds of bites on infants to increase the flow of blood on which to feed. Similarly, they may extensively bite and tear the scalp and face in an effort to get at and eat brain tissue, as reported in musteline attacks on natural prey. Frequent reference is made in older publications of the marked appetite of ferrets, polecats, and other mustelines for the blood and brains of their victims. Everitt (1897) stated that lactating ferrets require blood or they will eat their offspring. Fennell (1841) and Roberts (1977) reported that ferrets drink the blood of their victims, and Harding (1915) claimed that in an abundance of slaughtered prey, ferrets merely suck the blood of their victims, a practice also attributed to polecats (Bell, 1837; Johnston, 1903). Bell, like other early writers, cited the victim's brain as the first choice of solid tissues eaten after kills made by polecats and other mustelines. The accuracy of such accounts cannot be verified, but the repeated mention of such behavior suggests that these tendencies be considered when analyzing attacks of ferrets on human infants.

Of further interest in this regard is an account of a pet ferret drinking human infant blood in England more than 150 years ago. Jesse (1834) wrote:

"Some few years ago, a poor woman, holding a mangled infant in her arms, rushed, screaming with agony and fright, into my friend's house, who is a surgeon, imploring him to save the child's life, who, she said, had been almost killed by a ferret; the face, neck, and arms, were dreadfully lacerated, the jugular vein had been opened, as also the temporal artery; the eyes were greatly injured, and indeed the child, who is still living, has lost the entire sight of one of them, and has very imperfect vision in the other. Having stopped the still bleeding vessels, my friend accompanied the mother to her cottage, on entering which the child, in some degree recovering from its state of apparent death, began to cry, when the Ferret was in an instant seen rushing from behind some bawns where he had taken shelter, and, with his head erect, boldly came forward and met the infuriated parent in the middle of the room, still holding the infant in her arms. On my friend's kicking the Ferret, as the first impulse of protection, the animal endeavored to seize his leg, and not until his back was broken by repeated kicks, did he give over his earnest and reiterated attempts to renew his sanguinary feast; and indeed, whilst in the agonies of death, the piteous screams of the child seemed to rouse him to vain efforts to regain his prey. The Ferret was of large growth, and much distended with the infant's blood; and although formerly of peculiar shyness, yet he lost sight of fear, and became ferocious in the pursuit of the unfortunate infant. It appears the poor woman had left her child (about six months old) in a cradle whilst she went to market, when it is supposed the infant's cry had arrested the attention of the Ferret, who managed to make his escape, and thus effected his purpose. There is good reason to believe he must have past more than half an hour in the indulgence of his appetite, from the circumstance of the neighbors having heard the piercing shrieks of the child for a long time without the slightest suspicion of the mother's absence."

This is
ludicrous!
besides, the
animal was
probably the
true EURO.
parent.
If this
account has
even a
shred of
accuracy.

F. Liability of Ferret Ownership

We are aware of litigation against pet shops and ferret owners consequent to ferret attacks. Therefore, in our review of these cases we tried to assess the nature of ownership of ferrets that attacked

persons. Based on the available information, it appears that 55 percent of the ferret attacks in California were inflicted by known pets, with the remainder presumably due to strays or feral animals--at least they were of uncertain ownership. Of note, the ferrets of unknown origin may well have been former pets or strays because they did not hesitate to approach people. In fact, some were suspected to be pets of neighbors who were known to own ferrets, although ownership was typically denied following attacks. (If one were to consider the attacks of animals having unknown or disputed origin to be from pets of unknown owners and include them with the aforementioned attacks from pet ferrets not owned by the victim's family, then 84 percent of ferret attacks on Californians were inflicted by pet ferrets belonging to persons other than the victim, a percentage similar to what has been observed for dog bites.) Of the attacks from known pets, 29 percent were from ferrets residing in the victim's household.

Data relevant to the 64 unprovoked attacks on infants are similar to the foregoing except fewer of the infants were outside and available to be attacked by stray ferrets. Overall, in 45 (70 percent) of these cases information on animal ownership was known. Of the attacks on these infants from known long-established pets, 39 percent were from ferrets owned by the victim's family and 61 percent were from ferrets of other known ownership. Of the 7 attacks that were inflicted on infants by stray ferrets, 6 (86 percent) were from animals that had just been brought into the household because they were friendly. Of the 21 known owners of attacking ferrets from without the victim's

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family (i.e., for whom specific data were available), 7 (33 percent) were visitors, 6 (29 percent) were babysitters, 5 (24 percent) were hosts, and 3 (14 percent) were vendors.

Our data indicate that 28 percent of attacked infants 3 years of age or younger required plastic and reconstructive surgery, especially of their faces. Some of the infants were left with permanent disfigurement. Four percent of bitten persons were exposed to rabid ferrets, and 22 percent of attacked persons were given rabies prophylaxis. It is possible that the actual occurrence of these sequelae are exaggerated, since more serious cases tend to be reported. However, it is also known that rabies prophylaxis is significantly underreported.

Given the above findings and concerns, it appears that ownership or selling of pet ferrets may present significant liability risks.

G. Feral Ferret Populations Can Devastate Small Livestock and Native Animals and Contribute to the Wildlife Rabies Problem

Intentional or accidental releases of pet ferrets have led to the development of feral ferret populations. This continues to be a problem. Indeed, "throughout the centuries the number of ferrets that have escaped and returned to the wild must be enormous" (Matthews, 1968). Such populations, a few of which have been trapped to extinction, have been reported in numerous places, including England, Wales, and Scotland (Corbet and Southern, 1977; Corbet, 1980; Howes, 1980), mainland Europe (Lyneborg, 1971), Eurasia (De Vos et al., 1956), the Mediterranean islands of Sardinia and Sicily (Corbet, 1980; Konig,

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1973), New Zealand (Corbet and Southern, 1977; Nowak and Paradiso, 1983), and the United States (Dolensek and Burn, 1976; Stevens, 1979; Hoffmeister, 1986; Olson, 1987). As already noted, feral populations seem to also have developed in California in recent years, even though the animals are officially banned from the State.

Feral ferrets are well known to behave like their polecat progenitors (Corbet, 1980), so it is not surprising that they have proved to be exceedingly destructive to small livestock like poultry and rabbits, as well as to native vertebrates. Their sometimes wanton destruction of small animals far beyond their food needs wreaks havoc on victimized native populations. Not only may adult animals be killed, but native species populations may be further harmed by the ferret's particular appetite for and ability to reach nestling mammals, birds, and eggs of the latter (ground-nesting species in particular).

Long known for their potential to harm small domestic animals and wildlife in Britain and Europe, ferret populations were established in New Zealand to lower populations of rabbits that had been introduced in 1864. Ferrets, and other introduced predators, now feed on native animals and have contributed to the extinction of 20 species of endemic New Zealand birds and have pushed many others to the brink of extinction (King, 1984).

Dolensek and Burn (1976) report that European ferrets were imported into the United States about 1875 to kill rats. New London, Ohio used to be known as "Ferretville, U.S.A." due to its large-scale breeding and sales of ferrets. However, feral populations developed,

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and the animals became a plague to poultry producers. Subsequently, control measures became necessary, including passage of anti-ferret regulations by many states.

Presently, a feral ferret population exists on San Juan Island, Washington, where the animals feed on introduced European rabbits, native animals, and possibly barnyard fowl. In addition to devastating European rabbit populations, they are believed responsible for reducing the native mink population in this area (Stevens, 1979). Similarly, at least three widely separated feral populations of European ferrets have been reported to be subsisting on prairie dog colonies in New Mexico (where they are competing with the near-extinct, native black-footed ferret) and have been reported to have attacked domestic poultry elsewhere (Olson, 1987). In a similar vein, Hoffmeister (1986), reporting on European ferrets living in the wild in various places in Cochise County, Arizona, has raised ecological concerns about feral ferrets in this area.

H. Ferrets and Rabies

As already discussed, ferrets can be infected with rabies transmitted to them by wild animals, and they can expose people and other vertebrates to the virus. Their ability to spread the infection among themselves is demonstrated by the infected caged ferret whose only known source of exposure was a ferret to which it had been bred. Moreover, rabies is regularly reported in European polecats, where populations of these animals have long been actively suppressed because of their destructive effects on livestock. Especially dangerous rabies

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problems may develop in feral ferret populations in areas not native to the polecat but having rabies endemic in other species.

There are two notable examples of outstanding rabies problems that have developed and persisted or grown worse in populations of introduced, nonnative carnivore species. At the turn of the century the raccoon dog was introduced from Korea into the far eastern Soviet Union, from which it has spread westward to Finland, Sweden, and Germany, becoming second only to foxes as a rabies vector in this part of the world (Kaplan, 1985). Similarly, Indian mongooses were imported to various Caribbean Islands in the late 1800s to control introduced pest rats and native poisonous snakes, but after destroying the rats they soon became the worst of all pests, greatly reducing the native fauna (i.e., all but exterminating several native species of mammals, birds, and reptiles) and causing serious economic repercussions by killing small domestic animals. Furthermore, the mongoose populations became infected with rabies, evidently from domestic dogs, and mongooses are now the most prominent rabies vector in the Caribbean Islands (De Vos et al, 1956; WHO Expert Committee on Rabies, 1984).

Being fearless, savage and tenacious, ferrets may readily suppress native competitors and thrive on smaller native and domestic vertebrates, such as those found in California. The same characteristics should make them exceptionally effective transmitters of rabies among themselves and to other wild and domestic mammals, and to man. The presence of rabies in wildlife in most of California's counties constitutes a ready source of infection. The potential for

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such transmission was realized in 1985, when an escaped pet ferret developed rabies of skunk origin upon recapture near Red Bluff, Tehama County, California (Table 7).

V. CONCLUSION

The legalization of ferrets as pets in California is opposed for many reasons, as discussed in the preceding pages. Indeed, after reviewing the history of ferrets and the data gathered here, there seems to be no conclusion other than ferrets are miscast as pets. Even though some pet ferret owners are willing to suffer bites as a price of pet ownership, it is not reasonable to expect their neighbors and other persons to do so, especially in light of the potential for devastating attacks on infants and concerns about rabies, to say nothing of potential establishment of feral populations and the destructive effects on wildlife and small livestock. One might also question the humaneness of producing and marketing as pets any animal that typically must undergo two surgical operations in an effort to decrease biting, minimize offensive odors, and prevent death from anemia.

Although ferret producers, vendors, and owners have been systematically pressuring various states and local jurisdictions to drop legal restrictions against pet ferrets (e.g., Anonymous, 1986), the converse has been encouraged by various organizations with knowledge of the hazards attendant to legalization of these animals as pets. Among the organizations opposing ferrets as pets are The Humane

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Society of the United States (Herbet, 1987), The Defenders of Wildlife (Spotts, 1985), The Council on Public Health and Regulatory Veterinary Medicine of the American Veterinary Medical Association (American Veterinary Medical Association, 1985), the Council of State and Territorial Epidemiologists (Freeman, 1988), the United States Animal Health Association (Diesch, 1982b), and the Centers for Disease Control, United States Public Health Service (Centers for Disease Control, 1986b). To help translate the concerns into action, the Humane Society of the United States (1985) has developed model state legislation that restricts ferrets as pets.

The differences in reported ferret attack rates between California and adjacent states (Table 6), where pet ferrets are unrestricted, indicate that California should continue to prohibit pet ferrets, albeit by no means entirely successful in this regard.

If California's present estimated annual ferret attack rate of 1 per million humans were to rise to that of Arizona, California's ferret-associated health problem would increase 25 fold. The increase might translate into annual increases in ferret attack reports on persons of all ages from 25 to 625 per year, rabies prophylactic treatments from 5.5 to 138 per year, and known exposures to rabid ferrets from 1 to 25. In addition, there would undoubtedly be a corresponding increase in financial costs for associated medical treatment and litigation. Likewise, the adverse effects of feral ferret populations on small livestock and wildlife would be increased.

Enforcement of California's ferret exclusion rule is necessary. And while the ferret industry claims that hundreds of thousands of

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ferrets are already in California illegally, that claim has not been verified, although there is evidence that efforts to import ferrets into California have increased greatly in the past few years. Ferret interceptions at agricultural inspection stations increased steadily from none in fiscal year 1975-76 to 210 in 1985-86 (California Department of Food and Agriculture, 1987). Greater surveillance and enforcement efforts in this regard may be needed.

Table 1
Unprovoked Ferret Attacks on Infants and Young Children

<u>CASE NO.</u>	<u>YEAR</u>	<u>SITE</u>	<u>VICTIM*</u>	<u>INJURY</u>	<u>CIRCUMSTANCES OF ATTACK</u>	<u>SOURCE OF FERRET</u>	<u>RABIES TEST**</u>	<u>REFERENCES</u>
1.	1978	London, England	6mo F	Exsanguination due multiple bites of face	2 ferrets escaped cage, entered baby carriage in bedroom where infant was lying	Family pets	--	Anon 1978,1979 Diesch 1981,1982a
2.	1978	Maryland	9day M	Multiple bites of head, face, neck and arms	Ferret escaped cage, entered crib and attacked sleeping infant	Family pet	Neg	Lebar 1978; Price & White 1978; Friedland 1978
3.	1978	South Carolina	Child M	Face bite, Antirabies treatment	No details available	Pet shop	Pos	Diesch 1981
4.	1978	Oregon	6yr F	Cheek bite	Child in bed, father bitten trying to remove ferret	Stray, had <24 hrs	--	Williams 1986a
5.	1978	Oregon	16mo	No bite; attack interrupted	Above ferret ran, jumped into crib; father bitten	Stray, had <24 hrs (Same animal as #4)	--	Williams 1986a
6.	1978	Oregon	2mo M	Scalp bite	Infant asleep in playpen	Visitor's pet	--	Williams 1986a
7.	1978	Oregon	3yr F	Cheek bite, had to pry loose	Ferret dead next day	Purchased same day	Neg	Williams 1986a
8.	1980	Ohio	2mo M	"Mauled," including face; massive hemorrhage	Attack initially unobserved, then interrupted	Family pet	--	Stevens 1980
9.	1981	Arizona	Child	Multiple puncture wounds of finger	Crawled on child	--	--	Wright 1986

10.	1981	Arizona	Infant	Multiple puncture wounds and laceration of face	Crawled into crib	--	--	Wright 1986
11.	1981	Arizona	Child	Single laceration (bite) on leg	Crawled on child	--	--	Wright 1986
12.	1981	Arizona	Baby	Multiple lacerations on cheek, wrist, leg	Baby sleeping	--	--	Wright 1986
13.	1981	Arizona	Baby	Multiple puncture wounds of arm and leg	Baby sleeping	--	--	Wright 1986
14.	1981	Arizona	5mo M	Forearm bite	At relative's home	Host's pet	--	Wright 1986
15.	1981	Colorado	5mo F	40% ears eaten; multiple face bites	Infant attacked in crib	Found in yard day before	Neg	CDC 1981
16.	1981	Nevada	7mo M	Hundreds of bites on face, hand, back of knee	Infant asleep in in crib; ferret was 4mo M, not neutered	Pet of babysitter	Neg	Coffey 1985a,1985b
17.	1982	Arizona	Child	Multiple puncture wounds and laceration on neck	Child sleeping	--	--	Wright 1986
18.	1982	Arizona	Child	Multiple puncture wounds of scalp & lip	Child sleeping	--	--	Wright 1986
19.	1982	Arizona	Child	Multiple lacerations above eye	Child sleeping	--	--	Wright 1986
20.	1982	Arizona	3wk M	Wrist "bitten"	Diapers being changed	Family pet	--	Wright 1986
21.	1982	Arizona	2mo F	Arm "bitten"	At relative's home	--	--	Wright 1986
22.	1982	Arizona	2yr M	Face "bitten"	Unknown	Family pet	--	Wright 1986

23.	1982	Maryland	2mo M	Face "mauled"; antirabies treatment	Unknown	Non-family pet; owner would not sacrifice	--	AP 1982
24.	1983	Arizona	2mo F	Bites to foot and ankle	Crawled into baby's bed	--	--	Wright 1986
25.	1983	Nevada	5mo M	Hundreds of bites to face, eyelids, back of head, hands, wrists	Infant asleep on bed; 7mo unspayed ferret escaped cage	Pet of babysitter	Neg	Coffey 1985a, 1985b
26.	1983	Oregon	9mo M	Bites on head and face	Attacked infant in crib	Pet shop	--	Williams 1986a
27.	1983	Oregon	11mo M	Bite on hand	Infant lying on floor	Visitor's pet	--	Williams 1986a
28.	1984	Arizona	Child	Multiple puncture wounds on cheek	Child asleep	--	--	Wright 1986
29.	1984	Arizona	Child	Single puncture wound on face	Child asleep	--	--	Wright 1986
30.	1984	California	10mo F	20 lacerations and puncture wounds on right side of neck	Ferret escaped cage, attacked infant in crib; ferret was uncastrated 7-9mo M	Illegal pet	--	Kelly 1986
31.	1984	Oregon	3yr F	Severe, multiple bites on face; had to pry animal off cheek	Ferret jumped into face of child while she was on the toilet	Pet having several previous owners	--	Williams 1986a
32.	1985	Arizona	5mo M	Bites on back of neck, forehead, hands	Ferret entered crib	--	--	Wright 1986
33.	1985	California	8mo M	Bite on hand	Infant attacked while lying on a blanket on the floor	Illegal pet (obtained 2 days earlier from owner of 2 yrs)	Neg	Miller 1986

34.	1985	California	18mo F	Bite on head; Antirabies treatment	Unknown	Ferret owner -- was visitor who left with animal	Fisher 1986
35.	1985	Indiana	6mo	Extensive bite wounds of the face, hands and arms	Ferret escaped cage and attacked infant in crib	Caught in yard	Neg AVMA 1985; Diesch 1986
36.	1985	Virginia	20mo F	Bites on ankle.	2yr F ferret escaped cage, ran to and bit child walking with mother near the ferret's home	Belonged to another party	Neg Anon 1985; Carton 1985
37.	1985	Nevada	29da F	Nose eaten; chewed eyelids, lips, face and hands	Attacked infant at 2 a.m. while child sleeping in playpen; ferret uncastrated 5mo M	Pet	Neg Coffey 1985a, 1985b
38.	1985	North Carolina	1mo M	Ear eaten	Ferret attacked infant in bed	Pet	-- Freeman 1987
39.	1985	North Carolina	5mo	100 puncture wounds to face and head	Unknown	Family pet	-- Freeman 1987
40.	1986	Arizona	Baby	Multiple puncture wounds of wrist	Crawled on baby	--	-- Wright 1986
41.	1986	California	5mo F	50 puncture wounds of face	Infant on floor with milk bottle when attacked	Illegal pet	Neg California Department of Food & Agriculture 1986; Tacal 1987a
42.	1986	California	3yr M	Bites & scratches on hand & feet	Ferret found near screaming child	Feral or stray	Neg Weeks 1986
43.	1986	California	18mo F	Bites on face	Not reported	Illegal pet (Feral or stray ferret adopted by family)	-- Giles 1986
44.	1986	California	3mo M	Multiple bites on face	Not reported	Illegal pet	-- Avedian 1986

45.	1986	California	14mo M	Bites on lip, cheek, and hands	Ferret attacked child in bed	Illegal pet	--	Tacal 1987b
46.	1986	New Jersey	14mo M	20-25 bites on arms and legs, deep laceration on foot sole	Attacked in crib at babysitter's home	Babysitter's pet for 2yrs	Neg	Sorhage 1986,1987
47.	1986	New Mexico	6wk F	Bitten on face	Infant in crib	Family pet	Neg	Hull 1986
48.	1986	New Mexico	3yr M	Bitten on face	Child in crib	Feral or stray, brought into home	Neg	Hull 1986
49.	1986	Oregon	8mo F	Over 200 bites on cheek, hands forearms and back	Infant sleeping in crib	Family pet for 6 mo	Neg	Williams 1986b
50.	1986	Oregon	2yr M	Bit end of penis	Climbed under bed-covers with sleeping child	Pet (purchased as kit 3 mo earlier)	--	Williams 1986a
51.	1986	Texas	9mo F	Severe bites and scratches to ears, around eyes and arm	Ferret escaped cage, entered infant's crib during the night	Family pet for 1 yr	--	Clark 1987a,1987b
52.	1986	Texas	Infant	Severely bitten on face and ears	Uncaged ferret attacked infant in crib	Family pet	--	Clark 1987a
53.	1986	Washington	18mo	Severely bitten on arm & leg; would not let go	Unknown	Family pet for 4 mo	--	Nicola 1986
54.	1986	New York	9mo F	Multiple bites of hand and forearm	Ferret attacked infant sitting on the floor	Family pet	Neg	Abelseth 1987
55.	1987	Washington	2da F	80 puncture wounds to head.	Ferret entered bassinet; mother awoke observing ferret with its teeth in scalp flipping infant over "like a piece of meat."	Host's pet	Neg	Gilmore 1987

56.	1987	Texas	2yr M	Facial bites	Ran to and attacked child on the floor; unspayed F ferret	Pet; Purchased at pet shop 2 yrs earlier by another commune member	--	Rutty 1987
57.	1987	Texas	14da	Bitten many times on arms	Above ferret entered crib of sleeping infant	Same as above	--	Rutty 1987
58.	1987	Cali-formia	5mo F	Multiple bites on forearm and elbow	Unspayed, 2yr F ferret climbed into bassinet to attack	Family pet for 4 mo	--	Minor 1987
59.	1987	Cali-formia	5mo F	"Wounds to head"	Ferret attacked child in bed; attack interrupted	Babysitter's pet in owner's home	--	Tacal 1987b
60.	1987	Colorado	4mo F	Multiple puncture wounds and lacerations to face, including conjunctiva	Ferret escaped cage; attacked child	Babysitter's pet in owner's home	--	Pape 1987
61.	1987	New Hampshire	4mo	Bites to face and hands	2 ferrets escaped cage; entered crib	Pets of visitor	Neg	Mock 1987; Clayton 1987
62.	1987	Wisconsin	7mo F	9 bites to scalp & 3 scratches from eye to temple	Child playing on floor when attacked	Pet	Neg	Kurth & Weiss 1987
63.	1987	New York	6mo F	Unknown	Ferret entered crib where infant was lying	Visitor's pet	Neg	Barr 1987
64.	1987	Cali-formia	2yr F	4 bites on right side neck; had to pry loose	Asleep in crib at babysitter's home when uncaged ferret attacked	Stray F ferret adopted 1.5 yrs earlier	Neg	Liska 1987

NOTE: The same amount of information is not available on all cases.

* -- M = Male; F = Female; yr = year; mo = month; wk = week; da = day
child, baby and infant = young child of unspecified age
but in all but one case appeared to be three years of age
or younger.

** -- Pos = Positive; Neg = Negative; -- = no information about
test results or no test performed.

**TABLE 2. CHARACTERISTICS OF 64 UNPROVOKED FERRET
ATTACKS ON INFANTS AND SMALL CHILDREN***

Characteristics of Attack	Number	(Percent)
Sex of Person Attacked		
Male	22	(48)
Female	24	(52)
Not reported	18	
Site of Wounds		
Head	30	(48)
Neck	3	(5)
Head or neck and limbs	11	(18)
Limbs	18	(29)
Assault blocked	1	
Site of wounds not reported	1	
Treatment Reported		
Reconstructive surgery	5	(28)
Wound debridement, dressings, etc.	7	(39)
Antirabies prophylaxis	4	(22)
None	2	(11)
Treatment not reported	45	
Characteristics of Attacking Ferrets		
Less than one year old	7	(39)
Adult	11	(61)
Not reported	47	
Male	7	(50)
Female	7	(50)
Not reported	51	
Pet	45	(87)
Stray	7	(13)
Not reported	12	
Neutered		
Not neutered	8	(100)
Not reported	56	
Positive Rabies Exposure (FRA)	1	(4)
Negative Rabies Exposure (FRA)	24	(96)
Not reported	39	

* In all but one case, the children were three years old or younger.

TABLE 3. CHARACTERISTICS OF 100 FERRET ATTACKS ON CALIFORNIANS

Characteristics of Attacks	AGE OF PERSON ATTACKED					Totals	
	3 Years or Younger	>3 to 10 Years	>10 to 20 Years	More than 20 Years	Not Reported		
	Number (Percent)	Number (Percent)	Number (Percent)	Number (Percent)	Number (Percent)	Number (Percent)	Number (Percent)
Sex of Person Attacked							
Male	4 (29)	4 (50)	8 (62)	26 (59)	2 (50)	44 (53)	
Female	10 (71)	4 (50)	5 (38)	18 (41)	2 (50)	39 (47)	
Not reported		1		7	9	17	
Total persons attacked	14	9	13	51	13	100	
Site of Wound							
Head	5 (36)		2 (15)			7 (9)	
Neck	2 (14)		1 (8)			3 (4)	
Head or neck and limbs	1 (7)					1 (1)	
Limbs	6 (43)	9 (100)	10 (77)	38 (100)	3 (100)	66 (86)	
Not reported				13	10	23	
Treatment Reported							
Reconstructive surgery*	1 (20)					1 (3)	
Wound debridement, dressings, etc.*	2 (40)	2 (67)	2 (40)	7 (37)		13 (41)	
Tetanus prophylaxis	1 (20)		1 (20)	7 (37)		9 (28)	
Antirabies prophylaxis	1 (20)	1 (33)		4 (21)		6 (19)	
Tetanus and antirabies			1 (20)			1 (3)	
None			1 (20)	1 (5)		2 (6)	
Not reported	9	6	8	32	13	68	
Characteristics of Attacking Ferrets							
Less than one year old	1 (20)	2 (40)	1 (20)			4 (13)	
Adult	4 (80)	3 (60)	4 (80)	12 (100)	4 (100)	27 (87)	
Not reported	9	4	8	39	9	69	
Male	3 (60)	2 (100)	3 (75)	14 (70)	3 (50)	25 (68)	
Female	2 (40)		1 (25)	6 (30)	3 (50)	12 (32)	
Not reported	9	7	9	31	7	63	
Pet	11 (79)	8 (89)	5 (38)	22 (50)	5 (42)	51 (55)	
Stray	3 (21)	1 (11)	8 (62)	22 (50)	7 (58)	41 (45)	
Not reported				7	1	8	
Unlicensed	10	4	4	19	5	42	
Not reported	4	5	9	32	8	58	
Neutered				3 (43)		3 (21)	
Not neutered	2 (100)	1 (100)	2 (100)	4 (57)	2 (100)	11 (79)	
Not reported	12	8	11	44	11	86	
Positive Rabies Exposure (FRA)				3 (7)		3 (4)	
Negative Rabies Exposure (FRA)	9 (100)	4 (100)	10 (100)	38 (93)	11 (100)	72 (96)	
Not reported	5	5	3	10	2	25	
Circumstances of Attack							
Unprovoked	11 (79)	1 (11)		7 (15)		19 (22)	
Climbed on person			1 (9)	1 (2)		2 (2)	
Handling/petting	1 (7)	6 (67)	5 (45)	21 (46)	4 (67)	37 (43)	
Feeding			1 (9)	4 (9)		5 (6)	
Finger in cage	1 (7)		1 (9)			2 (2)	
Otherwise provoked	1 (7)	2 (22)	3 (27)	13 (28)	2 (33)	21 (24)	
Not reported			2	5	7	14	

* May have included tetanus prophylaxis.

Table 4
 NUMBER OF FERRET ATTACKS REPORTED
 IN RESPONSE TO CDHS REQUEST FOR DATA IN EARLY 1986

<u>Year</u>	<u>Reporting State</u>		
	<u>California</u>	<u>Oregon</u>	<u>Arizona*</u>
1978		6	
1979		20	
1980		--**	17
1981		13	53
1982	3	10	51
1983	3	22	34
1984	14	--**	49
1985	23	5	37
1986	31		8
1987	<u>26</u>	—	—
Total	100	76	249

* Reporting from two counties only

** Data had been lost by Oregon health officials although cases were reported to have occurred in these years.

Table 5
Reported Ages of Ferret Attack Victims

<u>Age of Victim</u>	<u>California</u>	<u>Oregon</u>	<u>Arizona</u>	<u>Totals*</u>
"Baby"			5	5
< 1 yr.	6	4	5	15
1-2 yrs.	4	}	5	}
>2-3 yrs.	4		2	
"Child"			7	
>3-4 yrs.		}	2	}
>4-5 yrs.	3		1	
>5-6 yrs.	2	}	3	}
>6-7 yrs.	1		2	
>7-8 yrs.		}	} 200**	}
>8-9 yrs.				
>9-10 yrs.	3	}	}	}
"Adult"	63			
Unknown	14		17	31
Total	100	76	249	425

* 13 percent of attacks were in children 4 years old or younger.

** Presumably in this age range.

Table 6
Estimated Annual Ferret Attack Rates Per Million Persons

	<u>California</u>	<u>Oregon</u>	<u>Arizona*</u>
Estimated attacks/year (from Table 4)	27	20	50
1986 State population (millions)	27	2.7	2
Attacks/million persons (Persons)	1	7.4	25

** Reporting from two counties only*

Table 7

Rabies-Infected Pet European Ferrets Reported in the
United States

<u>Year</u>	<u>State</u>	<u>Details/Circumstances</u>	<u>Reference</u>
1958	Kentucky	None available	CDC 1983
1978	South Carolina	Child bitten in face by ferret from pet shop	Diesch 1981
1981	North Dakota	Pet; no vaccination	CDC 1983
1982	Kansas	Pet; no vaccination	CDC 1983
1982	Virginia	Ferret fought with raccoon in yard	Jenkins 1985
1983	Wisconsin	None available	CDC 1985
1985	California	Developed rabies after recapture; had escaped 3 months earlier after imported from Colorado.	VPHU 1986
1985	Michigan	(Possible error in diagnosis) FRA-positive but adult mouse test negative; live virus vaccine-induced?	Anderson 1986
1986	South Carolina	Bit owner who "spanked" it; purchased in a North Carolina pet shop 1 month earlier; Unneutered 5 month old male	CDC 1986a
1986	Washington, D.C.	"Kissing" exposure of person; Purchased from pet shop 1 year earlier	CDC 1986a
1986	North Dakota	Developed rabies after re-capture; Never vaccinated	CDC 1987
1987	Iowa	Ferret maintained in a cage as a breeder; was bred earlier in year	Currier 1987

ACKNOWLEDGMENTS

The authors gratefully acknowledge help from the following persons in compiling data on which this report is based:

M. K. Abelseth	H. Alishouse
G. R. Anderson	R. Avedian
E. F. Baker, Jr.	A. M. Beck
B. Benda	J. Bunter
A. Chandler	K. A. Clark
S. Coffey	J. Cookson
L. Curtis	L. Davis
S. L. Diesch	J. M. Doll
M. Eidson	L. Elliott
M. Ford	D. Fishbein
P. Fisher	J. Freeman
V. A. Giles	M. A. Greco,
W. H. Griffith	J. K. Grigor
D. I. Herbet	J. T. Horman
L. Hunter	N. S. Kelly
W. Klein	W. Kurth
S. Kwan	S. Liska
K. S. Mahoney	T. Maier
M. Miller	S. Minor
H. Mock	D. Murrill
J. Pape	J. Pearson
J. Porter	R. Purves
G. E. Reynolds	A. J. Ruff
J. Ruprecht	K. Rutty
L. Sawyer	H. Scott
Z. Shumway	F. E. Sorhage
J. Tacal	J. Walsh
E. K. Weeks	L. P. Williams
F. Wise	M. E. Wright

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APPENDIX I

CALIFORNIA STATE LAW RELEVANT TO FERRETS

Article 1
GENERALLY

Section

2116. Wild animal defined.
 2116.5. Legislative findings and intent.
 2117. Enforcing officer defined.
 2118. Importation, transportation, possession and release of specified wild animals; permit.
 2118.2. Elk; importation; findings.
 2118.3. Elk horns or antlers; removal from live elk for commercial purposes.
 2118.4. Elk; importation; seizure.
 2118.5. Possession without permit.
 2119. Publication of list.
 2120. Regulations governing entry, transportation, keeping, etc., of restricted wild animals; possession of other wild animals.
 2121. Freeing or permitting escape or release of restricted wild animals.
 2122. Regulations in co-operation with department of food and agriculture.
 2123. Descriptive material concerning restricted wild animals.

Historical Note

For general discussion of prior game laws, see Historical Note preceding § 3000.

Cross References

Exclusion of specified species from definition of "aquaculture", regulation under this chapter, see § 17.

§ 2116. Wild animal defined

As used in this chapter, "wild animal" means any animal of the class Aves (birds), class Mammalia (mammals), class Amphibia (frogs, toads, salamanders), class Osteichthyes (bony fishes), class Monorhina (lampreys), class Reptilia (reptiles), class Crustacea (crayfish), or class Gastropoda (slugs, snails) which is not normally domesticated in this state as determined by the commission.

(Stats.1957, c. 456, p. 1343, § 2116. Amended by Stats.1961, c. 617, p. 1770, § 2; Stats.1974, c. 1503, p. 3296, § 1.)

Legislative Counsel Notes

"Wild animal" used in place of "wild bird or animal."

Historical Note

The 1961 amendment included the classes Amphibia, Osteichthyes, Monorhina, Reptilia and Gastropoda; and deleted "phylum Mollusca (snails)".

The 1974 amendment substituted "is not normally domesticated in this state" for "either is not normally domesticated in this State or not normally native to this State".

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Similar to § 1165 of the Fish and Game Code of 1933, added by Stats.1953, c. 178, p. 1105, § 1. Section 1165 was derived from Stats.1933, c. 76, p. 516, § 7.

Forms

See West's California Code Forms, Fish and Game.

Cross References

Importation of wild animals by permit, application to excluded animals under this chapter, see Health and Safety Code § 25994.8.

§ 2116.5. Legislative findings and intent

The Legislature finds and declares that wild animals are being captured for importation and resale in California; that some populations of wild animals are being depleted; that many animals die in captivity or transit; that some keepers of wild animals lack sufficient knowledge or facilities for the proper care of wild animals; that some wild animals are a threat to the native wildlife or agricultural interests of this state; and that some wild animals are a threat to public health and safety. It is the intention of the Legislature that the importation, transportation, and possession of wild animals shall be regulated to protect the health and welfare of wild animals captured, imported, transported, or possessed, to reduce the depletion of wildlife populations, to protect the native wildlife and agricultural interests of this state against damage from the existence at large of certain wild animals, and to protect the public health and safety in this state.

(Added by Stats.1974, c. 1503, p. 3296, § 1.5.)

Library References

Game 3 1/2.
 C.J.S. Game § 7.

Notes of Decisions

1. In general raccoons for the pet trade. 65 Ops.Atty. Gen. 648, 12-30-82.
 The fish and game commission has the authority to prohibit the captive breeding of

§ 2117. Enforcing officer defined

As used in this chapter, "enforcing officers" means the enforcement personnel of the department, the state plant quarantine officers, and the county agricultural commissioners.

(Stats.1957, c. 456, p. 1343, § 2117.)

Legislative Counsel Notes

No change.

Historical Note

Identical with § 1165.1 of the Fish and Game Code of 1933, added by Stats.1953, c. 178, p. 1105, § 1. Section 1165.1 was derived from Stats. 1933, c. 76, p. 517, § 8.

Cross References

Deputies and county fish and game wardens, see § 850 et seq.

§ 2118. Importation, transportation, possession and release of specified wild animals; permit

It is unlawful to import, transport, possess, or release alive into this state, except under a revocable, nontransferable permit as provided in this chapter and the regulations pertaining thereto, any wild animal of the following species:

(a) Class Aves: (birds)

Family Cuculidae (cuckoos)

All species.

Family Alaudidae (larks)

Skylark, *Alauda arvensis*

Family Corvidae (crows, jays, magpies)

All species.

Family Turdidae (thrushes)

European blackbird, *Turdus merula*

Mistle (or mistle), thrush, *Turdus viscivorus*

Family Sturnidae (starlings and mynas or mynahs)

All species of the family, except hill myna (or hill mynah)

Gracula religiosa (sometimes referred to as *Eulabes religiosa*)

Family Ploceidae (weavers)

The following species:

Spanish sparrow, *Passer hispaniolensis*

Italian sparrow, *Passer italiae*

European tree sparrow, *Passer montanus*

Cape sparrow, *Passer capensis*

Madagascar weaver, *Foudia madagascariensis*

Baya weaver, *Ploceus baya*

Hawaiian rice bird, *Munia nitoria*

Red-billed quelea, *Quelea quelea*

Red-headed quelea, *Quelea erythrops*

Family Fringillidae (sparrows, finches, buntings)

Yellowhammer, *Emberiza citrinella*

(b) Class Mammalia (mammals)

Order Primates

All species except those in family Homonidae

Order Edentata (sloths, anteaters, armadillos, etc.)

All species.

Order Marsupialia (marsupials or pouched mammals)

All species.

Order Insectivora (shrews, moles, hedgehogs, etc.)

All species.

Order Dermoptera (gliding lemurs)

All species.

Order Chiroptera (bats)

All species.

Order Monotremata (spiny anteaters, platypuses)

All species.

Order Pholidota (pangolins, scaly anteaters)

All species.

Order Lagomorpha (pikas, rabbits, hares)

All species, except domesticated races of rabbits.

Order Rodentia (rodents)

All species, except domesticated golden hamsters, also known as Syrian hamster, *Mesocricetus auratus*; domesticated races of rats or mice (white or albino; trained, dancing or spinning, laboratory-reared); and domestic strains of guinea pig (*Cavia porcellus*).

Order Carnivora (carnivores)

All species, except domestic dogs (*Canis familiaris*) and domestic cats (*Felis catus*).

Order Tubulidentata (armadillos)

All species.

Order Proboscidea (elephants)

All species.

Order Hyracoidea (hyraxes)

All species.

Order Sirenia (dugongs, manatees)

All species.

Order Perissodactyla (horses, zebras, tapirs, rhinoceroses, etc.)

All species except those of the family Equidae.

Order Artiodactyla (swine, peccaries, camels, deer, elk, except elk (genus *Cervus*) which are subject to Section 2118.2, moose, antelopes, cattle, goats, sheep, etc.)

All species except: domestic swine of the family Suidae; American bison, and domestic cattle, sheep and goats of the family Bovidae; races of big-horned sheep (*Ovis canadensis*) now or formerly indigenous to this state.

Mammals of the orders Primates, Edentata, Dermoptera, Monotremata, Pholidota, Tubulidentata, Proboscidea, Perissodactyla, Hyracoidea, Sirenia and Carnivora are restricted for the welfare of the animals, except animals of the families Viverridae and Mustelidae in the order Carnivora are restricted because such animals are undesirable and a

menace to native wildlife, the agricultural interests of the state, or to the public health or safety.

- (c) Class Amphibia (frogs, toads, salamanders)
 - Family Bufonidae (toads)
 - Giant toad or marine toad, *Bufo marinus*
- (d) Class Monorhina (lampreys)
 - All species.
- (e) Class Osteichthyes (bony fishes)
 - Family Serranidae (bass)
 - White perch, *Morone* or *Roccus americana*
 - Family Clupeidae (herring)
 - Gizzard shad, *Dorosoma cepedianum*
 - Family Sciaenidae (croakers)
 - Freshwater sheepshead, *Aplodinotus grunniens*
 - Family Characidae (characins)
 - Banded tetra, *Astyanax fasciatus*
 - All species of piranhas
 - Family Lepisosteidae (gars)
 - All species.
 - Family Amiidae (bowfins)
 - All species.
- (f) Class Reptilia (snakes, lizards, turtles, alligators)
 - Family Crocodilidae
 - All species.
- (g) Class Crustacea (crustaceans)
 - Genus *Cambarus* (crayfishes)
 - All species.
 - Genus *Astacus* (crayfishes)
 - All species.
 - Genus *Astacopsis* (crayfishes)
 - All species.
- (h) Class Gastropoda (slugs, snails, clams)
 - All species of slugs.
 - All species of land snails.

(i) Such other classes, orders, families, genera, and species of wild animals which may be designated by the commission in cooperation with the Department of Food and Agriculture, (a) when such class, order, family, genus or species is proved undesirable and a menace to native wildlife or the agricultural interests of the state, or (b) to provide for the welfare of wild animals.

(j) Classes, families, genera, and species in addition to those listed above may be added to or deleted from the above lists from time to time

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by commission regulations in cooperation with the Department of Food and Agriculture.

(Stats.1957, c. 456, p. 1343, § 2118. Amended by Stats.1961, c. 617, p. 1770, § 3; Stats.1970, c. 302, p. 578, § 1; Stats.1974, c. 1503, p. 3296, § 2; Stats.1977, c. 436, p. 1470, § 1; Stats.1979, c. 1074, p. 3844, § 1, eff. Sept. 28, 1979.)

Legislative Counsel Notes

"Wild animal" used in place of "wild bird or animal."

Historical Note

The 1961 amendment rewrote the section, which prior thereto read:

"It is unlawful to import or transport alive into this State, except as provided in this chapter, any wild animal of any of the following species or groups:

"(a) Yellowhammer, *Emberiza citrinella*; hooded crow, *Corvus cornix*; carrion crow, *Corvus corone*; rook, *Corvus frugilegus*; European starling, *Sturnus vulgaris*; crested starling, *Aethiopsar cristatellus*; common mynah, *Acridotheres tristis*; skylark, *Alauda arvensis*; European blackbird, *Turdus merula*; missel thrush, *Turdus viscivorus*; baya, *Ploceus baya*; Madagascar weaver, *Foudia madagascariensis*.

"(b) Opossums of the family Didelphidae; European rabbit, *Lepus cuniculus*; European hare, *Lepus europaeus*, and all other species of the family Leporidae except domesticated races of rabbits; bank vole, *Clethrionomys glareolus*; field voles, *Microtus hirtus* and *Microtus agrestis*; water rat, *Arvicola amphibus*; long-tailed field mouse, *Apodemus sylvaticus*; and all other species of the following rodent families, Muridae (mice and rats), Cricetidae (hamsters and old world field mice), Sciuridae (ground squirrels, prairie dogs, woodchucks, etc.), and Geomyidae (pocket gophers); weasel, *Mustela nivalis*; stoat, *Mustela erminea*; ferret, *Mustela furo*; mongoose, *Herpestes mungo*, and all other species of the genus *Herpestes*; European mole, *Talpa europaea*, and all other Talpidae; flying foxes or fruit bats of the family Pteropodidae; bats of the family Desmodontidae.

"(c) Crayfishes of the genera *Cambarus* and *Astacus*; slugs and land snails of the molluscan class Gastropoda.

"(d) Such other species of wild animal which may be subsequently designated by the commission when such species are

proved undesirable and a menace to the native wildlife or to the agricultural interests of this State."

The 1970 amendment made "possession" of the listed species unlawful.

The 1974 amendment inserted "revocable, nontransferable" preceding "permit" in the introductory sentence; rewrote subd. (b), which prior thereto read:

"Class Mammalia (mammals)

"Family Didelphidae (opossums)

"All species

"Family Leporidae (rabbits, hares)

"All species, except domesticated races of rabbits

"Family Cricetidae (hamsters, field mice, voles)

"All species, except laboratory-reared golden hamsters, also known as Syrian hamster, *Mesocricetus auratus*

"Family Muridae (mice, rats)

"All species, except domesticated races (white or albino) of rats and mice

"Family Geomyidae (pocket gophers)

"All species

"Family Sciuridae (squirrels, woodchucks)

"All species

"Family Dasypodidae (agoutis)

"All species

"Family Procyonidae (raccoons, coatis)

"All species

"Family Mustelidae (weasels, ferrets)

"All species

"Family Viverridae (civets, mongooses)

"All species

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"Family Talpidae (moles)

"All species

"Family Pteropodidae (flying foxes or fruit bats)

"All species

"Family Desmodontidae (true vampire bats)

"All species

"Family Cervidae (deer, elk, moose)

"All species

"Family Bovidae (cattle, buffaloes, bison, sheep, goats, gazelles, Old World and African antelopes)

"All species, except domesticated cattle, sheep, goats, and the races of big-horned sheep (*Ovis canadensis*) now or formerly indigenous to this state

"Family Tayassuidae (peccaries)

"All species

"Family Suidae (swine)

"All species, except domesticated swine";

substituted "Department of Food and Agriculture" for "State Department of Agriculture" and "Department of Agriculture" in subds. (i) and (j), respectively; inserted designation (a) within subd. (i); and added, to the end of subd. (i), "or (b) to provide for the welfare of wild animals".

Cross References

Inspection and refusal of admittance of restricted wild animals, see § 2185.

Permits for importation or transportation of certain wild animals designated by this section, see § 2150.

Supply of descriptive material concerning restricted wild animals, see § 2123.

Administrative Code References

Permits for research purposes, see 14 Cal. Adm. Code 671.1 et seq.

Library References

Fish \Leftrightarrow 8.

Game \Leftrightarrow 3½.

C.J.S. Fish § 26.

C.J.S. Game § 7.

Notes of Decisions

In general 2

Raccoons 3

Validity 1

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The 1977 amendment, in subd. (b), under "Order Rodentia", substituted "domesticated" for "laboratory-reared" preceding "golden hamsters", and deleted "nutria possessed in accordance with provisions of the Food and Agricultural Code" following "Mesocricetus auratus".

The 1979 amendment, in subd. (b), under "Order Artiodactyla", inserted "except elk (genus *Cervus*) which are subject to Section 2118.2".

Section 4.5 of Stats. 1979, c. 1074, p. 3845, provides:

"Any person prior to January 1, 1980, may apply to the State Board of Control for, and the board shall pay, compensation for actual damages, which shall not include any anticipated loss of profits, not to exceed one hundred fifty thousand dollars (\$150,000), as a result of establishing a business in reliance on a permit issued by the Department of Fish and Game, pursuant to approval granted by the Fish and Game Commission, when it is no longer legal to conduct such business."

Similar to § 1165.2 of the Fish and Game Code of 1933, added by Stats. 1953, c. 178, p. 1105, § 1.

Section 1165.2 was derived from Stats. 1933, c. 76, p. 515, § 1.

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piranha which he was ordered to destroy or otherwise dispose of, and as he thus acquired no protectible property right in the fish, the order and the legislation and regulations pursuant to which the order was issued did not deprive appellant of his property without due process of law. *Adams v. Shannon* (1970) 86 Cal. Rptr. 641, 7 C.A.3d 427.

2. In general

In suit wherein tropical fish dealer sought an injunction to restrain the department of fish and game from enforcing statutes and regulations prohibiting the impor-

tation and possession of piranha, the record established that legislature's action was based upon a firm foundation in fact, there being qualified expert opinion that piranha, if introduced into the waters of California, could seriously endanger existing species of aquatic life. *Adams v. Shannon* (1970) 86 Cal. Rptr. 641, 7 C.A.3d 427.

3. Raccoons

The fish and game commission has the authority to prohibit the captive breeding of raccoons for the pet trade. 65 Ops. Atty. Gen. 648, 12-30-82.

§ 2118.2. Elk; importation; findings

Except as provided in Section 1007, it is unlawful to import any elk (genus *Cervus*) into this state. The department may import elk pursuant to Section 1007, if prior to such importation, the department issues written findings justifying the need for and explaining the purpose of the importation.

This section shall not apply to zoos certified by the United States Department of Agriculture.

(Added by Stats. 1979, c. 1074, p. 3844, § 2, eff. Sept. 28, 1979.)

Library References

Game \Leftrightarrow 3½.

C.J.S. Game § 7.

§ 2118.3. Elk horns or antlers; removal from live elk for commercial purposes

No part of any elk horn or antler shall be removed from any live elk for commercial purposes.

(Added by Stats. 1979, c. 1074, p. 3845, § 3, eff. Sept. 28, 1979.)

Library References

Game \Leftrightarrow 3½.

C.J.S. Game § 7.

§ 2118.4. Elk; importation; seizure

The department shall seize any elk imported in violation of Section 2118.2.

(Added by Stats. 1979, c. 1074, p. 3845, § 4, eff. Sept. 28, 1979.)

(h) Any permit issued pursuant to these regulations may be cancelled or suspended at any time by the director of the department when, in his judgment, permittee is acting or has acted contrary to the terms and conditions of subject permit, or if, in his judgment, the safety or welfare of the species authorized to be taken by subject permit is or may be jeopardized by the actions of permittee.

NOTE: Authority cited: Section 1002, Fish and Game Code. Reference: Sections 3511, 4700, 5050 and 5515, Fish and Game Code.

HISTORY:

1. New section filed 2-18-81; effective thirtieth day thereafter (Register 81, No. 8).

671. Importation, Transportation and Possession of Wild Animals.

The following species of the families which are prohibited or for which a permit is required are determined to be not normally domesticated in this state and shall not be imported into, transported within or possessed in this state, and permits for their entry, transportation or possession will be refused by the Department of Fish and Game, except that permits may be granted for the species as specified herein and for purposes designated below subject to the conditions and restrictions contained in Sections 671.1, 671.2, 671.4, 671.5, and/or 671.6 and such other conditions as may be designated by the department.

The birds, amphibians, fish, reptiles, crustaceans, and gastropods which are prohibited or for which a permit is required in this regulation are restricted to reduce the depletion of these wild animal populations, or because such animals are undesirable and a menace to native wildlife, the agricultural interests of the state, or to the public health or safety.

Mammals of the orders Primates, Edentata, Dermoptera, Monotremata, Pholidota, Tubulidentata, Proboscidea, Perissodactyla, Hyracoidea, Sierenia, and Carnivora, which are prohibited or for which a permit is required are restricted for the welfare of the animals, except animals of the families Viverridae, Procyonidae except pandas and *Procyon lotor* (American raccoon), and Mustelidae excepting genera *Amblyonyx*, *Aonyx*, *Pteronura* and *Lutra* (river otters), and the family Felidae in the order Carnivora are restricted because such animals are undesirable and a menace to native wildlife, the agricultural interests of the state, or to the public health or safety. Mammals of other orders which are prohibited or for which a permit is required except the families Macropodidae (kangaroos, wallabies) and Phalangeridae (Phalangers, koalas) in the order Marsupialia, and the family Camelidae (camels, etc.) in the order Artiodactyla are restricted because such animals are undesirable and a menace to native wildlife, the agricultural interests of the state, or to the public health.

Subject to applicable provisions of the Fish and Game Code or regulations of the Fish and Game Commission set forth in Title 14, species not listed below may be imported, transported or possessed without a permit. No person shall release into the wilds of this state any animal which is not native to California except as provided in these regulations. (See Section 671.5.)

(a) Class Aves—Birds

(1) Family Alaudidae—Larks

Alauda arvensis (Skylark)—Prohibited.

(2) Family Cuculidae—Cuckoos

All species—Prohibited.

(3) Family Corvidae—Crows, Ravens, Rooks, Jackdaws (Genus *Corvus*)

All species—Prohibited.

TITLE 14

FISH AND GAME COMMISSION

(Register 67, No. 19—5-9-67)

§ 671

(p. 52.72.5)

- (4) Family Turdidae—Thrushes, Blackbirds, Fieldfare
 - (A) *Turdus merula* (European blackbird)—Prohibited.
 - (B) *Turdus viscivorus* (Missel thrush)—Prohibited.
 - (C) *Turdus pilaris* (Fieldfare)—Prohibited.
 - (D) *Turdus musicus* (Song thrush)—Prohibited.
- (5) Family Sturnidae—Starlings, Mynahs
 - All species except *Sturnus vulgaris* (Starling) and *Gracula religiosa* or *Eulabes religiosa* (Hill mynahs)—Prohibited.
- (6) Family Ploceidae—Sparrow, Weavers, Queleas
 - (A) Genus *Passer* (Sparrow)
 - All species except *Passer domesticus* (English house sparrow)—Prohibited.
 - (B) *Foudia madagascariensis* (Madagascar weaver)—Prohibited.
 - (C) *Ploceus baya* (Baya weaver)—Prohibited.
 - (D) Genus *Quelea* (Quelea)—All species prohibited.
- (7) Family Estrildidae—Waxbills, Munias, Ricebirds
 - (A) *Padda oryzivora* (Java sparrow)—Prohibited.
 - (B) *Munia nitoria* (Hawaiian rice bird)—Prohibited.
- (8) Family Emberizidae—Yellowhammer
 - Emberiza citrinella* (Yellowhammer)—Prohibited.
- (9) Order Falconiformes—Falcons, Eagles, Hawks, Vultures
 - All species prohibited, except under conditions set forth in Section 670, Title 14, California Administrative Code.
- (10) Order Strigiformes—Owls
 - All species prohibited, except under conditions set forth in Section 670, Title 14, California Administrative Code.
- (11) Family Pycnonotidae—Bulbuls or Fruit Thrushes
 - Pycnonotus jocosus* (Red-whiskered bulbul)—Prohibited.
- (12) Family Zosteropidae—Whiteeyes
 - Genus *Zosterops*—All species prohibited.
- (13) Family Psittacidae—Parrots, Parakeets
 - Myiopsitta monachus* (Monk or Quaker parakeet)—Prohibited.
- (b) Class Mammalia—Mammals
 - (1) Order Primates
 - All species except Family Hominidae—Prohibited.
 - (2) Order Edentata—Sloths, anteaters, armadillos, etc.
 - All species—Prohibited.
 - (3) Order Marsupialia—Marsupials or Pouched Animals
 - All species except *Didelphis marsupialis* (Common opossum)—Prohibited.
 - (4) Order Insectivora—Shrews, Moles, Hedgehogs, etc.
 - All species—Prohibited.
 - (5) Order Dermoptera—Gliding Lemurs
 - All species—Prohibited.
 - (6) Order Chiroptera—Bats
 - All species—Prohibited.
 - (7) Order Monotremata—Spiny Anteaters, Platypuses
 - All Species—Prohibited.
 - (8) Order Pholidota—Pangolins, Scaly Anteaters
 - All species—Prohibited.

- (9) Order Lagomorpha—Pikas, Rabbits, and Hares
All species except domesticated races of rabbits and hares of the Family Leporidae—Prohibited.
- (10) Order Rodentia—Hamster, Field Mice, Voles, Muskrats, Gerbils, Squirrels, Chipmunks, Woodchucks, and Prairie Dogs
(A) All species prohibited except:
1. *Ondatra zibethica* (Muskrats)—Under conditions set forth in Fish and Game Code Section 2250;
2. *Myocastor coypus* (Nutria)—Under conditions set forth in Food and Agricultural Code Sections 165–165.6;
3. Domesticated races of golden hamsters of the species *Mesocricetus auratus*;
4. Domesticated races of rats or mice (white or albino; trained, dancing or spinning, laboratory-reared); and
5. Domesticated races of guinea pigs of the species *Cavia porcellus*.
6. Domesticated races of chinchillas of the species *Chinchilla laniger*.
- (11) Order Carnivora—Raccoons, Ringtailed Cats, Kinkajous, Coatis, Cacomistles, Weasels, Ferrets, Skunks, Polecats, Stoats, Mongoose, Civets, Wolves, Foxes, Coyotes, Lions, Tigers, Ocelots, Bobcats, Servals, Leopards, Jaguars, Cheetahs, Bears, etc.
(A) Skunks (all species)—Prohibited except under conditions set forth in Section 2606.8, Title 17, California Administrative Code.
(B) Family Felidae—All species except *Felis catus* (domestic cats)—Prohibited except as provided in Sections 671.1 and 671.4(b) of these regulations and Section 3005.9, Fish and Game Code, except that permits are required for cheetahs (*Acinonyx*).
(C) All other species except *Canis familiaris* (domestic dogs)—Prohibited.
- (12) Order Tubulidentata—Aardvarks
All species—Prohibited.
- (13) Order Proboscidae (Elephants)
All species—Prohibited.
- (14) Order Hyracoidae (Hyraxes)
All species—Prohibited.
- (15) Order Sirenia (Dugongs, Manatees)
All species—Prohibited.
- (16) Order Perissodactyla (Horses, Zebras, Tapirs, Rhinoceroses, etc.)
All species except Family Equidae—Prohibited.
- (17) Order Artiodactyla—Swine, Peccaries, Camels, Deer, Elk, Moose, Antelopes, Cattle, Goats, Sheep, etc.
(A) Family Cervidae
Elk (*Cervus*)—Prohibited, except a permit may be issued to a California licensed domesticated game breeder for possession of domesticated elk already within California.
All other species—Prohibited, except permits may be issued for all species to a California licensed domesticated game breeder.
- (B) Family Bovidae
All species—Prohibited, except permits may be issued to a California licensed domesticated game breeder for races of *Ovis canadensis* (Bighorn sheep) which are now or were formerly indigenous to this state.

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§ 671

(Register 88, No. 9—2-27-88)

(p. 52.72.7)

(C) Family Antilocapriade—Pronghorn Antelope Prohibited, except permits may be issued to a California licensed domesticated game breeder.

(D) All other families and species except *Bison bison* (American bison) and domesticated swine, cattle, sheep, or goats—Prohibited.

(c) Class Amphibia—Frogs, Toads, Salamanders

(1) Family Bufonidae—Toads

Bufo marinus, *Bufo paracnemis*, *Bufo horribilis* (Giant toad or marine toad group) and all other large toads from Mexico and Central and South America—Prohibited.

(2) Family Pipidae—Tongueless Toads

All species of genus *Xenopus*—Prohibited.

(d) Class Agnatha—Jawless Fishes

(1) Family Petromyzontidae—Lampreys

All nonnative species—Prohibited.

(e) Class Osteichthyes—Bony Fishes

(1) Family Percichthyidae—Temperate Basses

Morone americana (White perch)—Prohibited.

(2) Family Clupeidae—Herrings

Dorosoma cepedianum (Gizzard shad)—Prohibited.

(3) Family Sciaenidae—Drums

Aplodinotus grunniens (freshwater drum)—Prohibited.

(4) Family Characidae—Characins

(A) *Astyanax fasciatus* (Banded tetra)—Prohibited.

(B) All species of genera *Serrasalmus*, *Serrasalmo*, *Pygocentrus*, *Taddyyella*, *Rooseveltiella*, and *Pygopristis* (Piranhas)—Prohibited.

(C) *Hoplias malabaricus* (Tiger fish)—Prohibited.

(5) Family Lepisosteidae—Gars

All species—Prohibited.

(6) Family Amiidae—Bowfins

All species—Prohibited.

(7) Family Poeciliidae—Livebearers

Belonesox belizanus (Pike top minnow)—Prohibited.

(8) Family Channidae—Snakeheads

All species—Prohibited.

(9) Family Cyprinidae—Carps or Minnows

(A) *Leuciscus idus* or—Prohibited.

(B) *Ctenopharyngodon idellus* (Grass carp)—Prohibited.

(10) Family Trichomycteridae (Pygidiidae)—Parasitic Catfishes.

All species—Prohibited.

(11) Family Cetopsidae—Whalelike Catfishes.

All species—Prohibited.

(12) Family Clariidae—Airbreathing Catfishes

All species of genera *Clarias*, *Dinotopterus*, and *Heterobranchus*—Prohibited.

(13) Family Heteropneustidae (Saccobranchidae)—Airsac Catfishes

All species—Prohibited.

(14) Family Cichlidae—Cichlids

(A) *Tilapia sparrmanii* (Tilapia)—Prohibited.

(B) *Tilapia zillii* (Redbelly tilapia)—Prohibited, except permit may be issued to a person or agency for importation, transportation, or possession in the counties of San Bernardino, Los Angeles, Orange, Riverside, San Diego, and Imperial.

- (15) Family Anguillidae—Freshwater Eels.
All species of genus *Anguilla*—Prohibited.
- (f) Class Chondrichthyes—Cartilaginous Fishes
- (1) Family Carcharhinidae—Requiem sharks
All species of genus *Carcharhinus* (Freshwater sharks)—Prohibited.
- (2) Family Potamotrygonidae—River stingrays
All species—Prohibited.
- (g) Class Reptilia—Reptiles
- (1) Order Crocodilia—Crocodiles, Caimans, Alligators and Gavials
All species—Prohibited.
- (2) Family Chelyridae—Snapping turtles
All species—Prohibited.
- (3) Family Elapidae—Cobras, Coral Snakes
All species—Prohibited.
- (4) Family Viperidae—Adders and Vipers
All species—Prohibited.
- (5) Family Crotalidae—Pit Vipers
All species—prohibited, except *Crotalus viridis* (western rattlesnake), *Crotalus atrox* (western diamondback rattlesnake), *Crotalus ruber* (red diamond rattlesnake), *Crotalus scutulatus* (Mojave rattlesnake), *Crotalus mitchellii* (speckled rattlesnake) and *Crotalus cerastes* (sidewinder)
- (6) Family Colubridae—Colubrids
- (A) *Dispholidus typus* (Boomslang)—Prohibited.
- (B) *Theoltornis kirtlandii* (Bird or Vine Snake)—Prohibited.
- (h) Class Crustacea—Crustaceans
- (1) All species of family Cambaridae except *Procambarus clarkii* and *Orconectes virilis*—Prohibited.
- (2) All species of genus *Eriocheir*—Prohibited.
- (i) Class Gastropoda—Slugs, Snails
All nonnative species of slugs and land snails except *Rumina decollata* (decolate snail) in the counties of San Bernardino, Riverside, Imperial, Orange, San Diego, Los Angeles, Ventura, Tulare and Santa Barbara with the concurrence of the appropriate county agricultural commissioners; and *Helix aspersa* (brown garden snail)—Prohibited.

NOTE: Authority cited: Sections 1002, 2116, 2118, 2120, 2122, 3005.9 and 3005.92, Fish and Game Code. Reference: Sections 1002, 2116-2118, 2118.2, 2118.4, 2119-2153, 2185-2191, 3005.9 and 3005.92, Fish and Game Code.

HISTORY:

1. Amendment of subsection (g) (5) filed 2-9-84; effective thirtieth day thereafter (Register 84, No. 6). For prior history, see Register 81, No. 29.
2. Amendment of subsection (i) filed 7-8-85; effective thirtieth day thereafter (Register 85, No. 28).
3. Editorial correction of NOTE filed 9-20-85; effective thirtieth day thereafter (Register 85, No. 38).
4. Notice of Erroneous Filing filed 3-24-86 by OAL; purported amendment of subsection (g) (5) filed in error on 2-5-86 is null and void and text as filed with Secretary of State on 2-9-84 remains in effect uninterrupted (Register 86, No. 13).
5. Amendment of subsection (g) (5) filed 3-24-86; effective thirtieth day thereafter (Register 86, No. 13).
6. Amendment of subsection (h) filed 11-7-86; effective upon filing (Register 86, No. 45).
7. Amendment of subsection (g) (1) filed 5-1-87; operative 5-31-87 (Register 87, No. 19).
8. New subsection (e) (15) filed 2-16-88; operative 3-17-88 (Register 88, No. 9).

TITLE 14**FISH AND GAME COMMISSION****§ 671.2****(Register 88, No. 9—2-27-88)****(p. 52.72.9)****671.1. Permits for Zoological Gardens, Research and Film Making.**

(a) With the concurrence of the Departments of Health and Food and Agriculture, the Department of Fish and Game may issue permits for importation, transportation and possession of restricted and prohibited species listed herein for exhibition by zoological gardens and for use for scientific or public health research by a college, university, or government research agency, or other bona fide scientific institution as determined by the department, to meet immediate research or medical needs. With the above concurrence the department may issue permits authorizing the importation, transportation, and possession of restricted or prohibited species listed herein if such animals are to be used for public display or public exhibition through the mediums of motion pictures and television; no permittee shall transfer possession or ownership of any such animal without approval of the department. All animals imported and/or possessed under this subsection must be imported, transported, maintained, and disposed of under such conditions as the department may prescribe.

NOTE: Authority cited: Sections 1002, 2116, 2118, 2118.5, 2120, 2122, 3005.9 and 3005.92, Fish and Game Code. Reference: Sections 2002, 2116-2118, 2118.2, 2118.4, 2119-2155, 2185-2191, 3005.9 and 3005.92, Fish and Game Code.

HISTORY:

1. Amendment filed 5-6-75 as an emergency; effective upon filing (Register 75, No. 18). For prior history, see Register 75, No. 4.
2. Certificate of Compliance filed 7-3-75 (Register 75, No. 27).
3. Amendment of subsection (a) filed 5-11-79; effective thirtieth day thereafter (Register 79, No. 19).
4. Amendment of NOTE filed 7-16-81; effective thirtieth day thereafter (Register 81, No. 29).
5. Order of Repeal of subsection (b) filed 6-3-85 by OAL pursuant to Government Code Section 11349.7; effective thirtieth day thereafter (Register 85, No. 26).
6. Editorial correction of NOTE filed 9-20-85; effective thirtieth day thereafter (Register 85, No. 38).

671.2. Neutered Male Animals.

NOTE: Authority cited: Sections 1002, 2116, 2118, 2120, 2122, 3005.9 and 3005.92, Fish and Game Code. Reference: Sections 1002, 2116-2118, 2118.2, 2118.4, 2119-2155, 2185-2191, 3005.9 and 3005.92, Fish and Game Code.

HISTORY:

1. Amendment filed 6-30-66; effective thirtieth day thereafter (Register 66, No. 20).
2. Amendment filed 1-24-75 as an emergency; effective upon filing. Certificate of Compliance included (Register 75, No. 4).
3. New NOTE filed 7-16-81; effective thirtieth day thereafter (Register 81, No. 29).
4. Editorial correction of NOTE filed 9-20-85; effective thirtieth day thereafter (Register 85, No. 38).
5. Repealer filed 7-15-87; operative 8-14-87 (Register 87, No. 29).