



WILDLIFE JOURNAL

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THE DROUGHT TAKES ITS TOLL

For two years California has basked and fried under clear skies. Rainfall has been from 25% to 50% below normal. These last two years have won the dubious honor of being the driest in California's recorded history. California's wildlife has suffered from the drought but not succumbed. Another year of drought for 1978, which seems to be a literally un-predictable event, may push some species over the edge.

Fish have been the most severely affected. According to Fish and Game biologist Paul Jensen, 30% to 40% of the fish in Northern and Central California creeks have died without spawning. The normal mortality rate is 4%.

Bodega Bay Marine Lab has been responsible for saving the fresh water shrimp, *Syncaris pacifica*, found in north coast salmon streams, endangered because fresh water was being pumped from these streams for human use. Reduction of habitat and a net gain in the water temperature of reservoirs, has meant a decrease in the zooplankton and a very low reproductive rate for Striped bass, Silver salmon and Steelhead trout. In fall 1977, Fish and Game conducted a rescue operation for salmon. They took 3,500 fish from the upper Sacramento River to the cooler water of the Feather River Hatchery near Oroville. Their goal is to produce seven million three inch fish for release next spring on the Sacramento River and another two million six inch yearlings for release in January 1979.

The level of Lake Tahoe has dropped below the level of the Truckee River outflow; Fish and Game estimates that 85%

of the 68,000 fish in the upper region of the Truckee River will die.

Frogs, newts, salamanders and aquatic snakes have been severely reduced. If the drought continues into 1978, Fish and Game will begin rescue efforts to save the endangered Santa Cruz long-toed salamander.

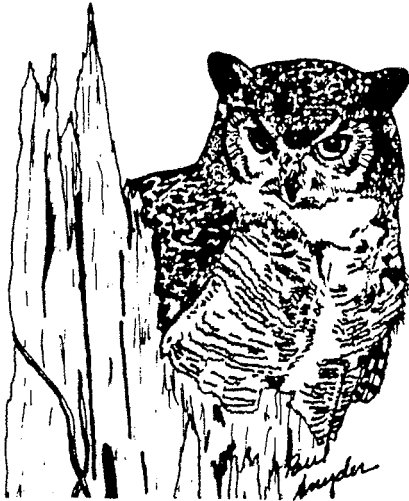
Ten million ducks and one million geese migrate through California each year to winter in the Sacramento Valley. Mild weather has delayed migration, so that there are 30% fewer ducks present at this point. Hopefully this trend will continue, because the rice farmers in the Sacramento Valley planted only one-half the normal acreage in rice this year. Along with a loss of food, salt water intrusion in some areas is destroying waterfowl breeding habitat. So far, there has been no measurable effect on waterfowl; but, according to Anne Williams of the International Bird Rescue Center in Berkeley, low water levels, a decrease in habitat and food and overcrowding can cause disease epidemics, such as cholera and a form of botulism.

Quail, particularly along the Coast Range, near the San Joaquin Valley, have not been breeding. They need vitamin D, obtained through new growth grasses, to stimulate breeding behavior. Mortality has been low, so that, at present, populations are on the low side of normal.

At the Marin Museum Wildlife Care Center, Martha Williams states that the raptorial birds in Marin County have had virtually no offspring for the 1977 season. Marin County is one of the more

seriously drought affected areas of California, and, as a result, many raptors have migrated out of Marin.

Generally, however, predators in California are faring better. Prey populations are at their peak, except for muskrats, who lost large stretches of habitat, when miles of irrigation channels were drained to conserve water. An increase in rodents, combined with mild temperatures, has meant an increase in fleas. There were five recorded cases of bubonic plague (spread by fleas) in humans in the past two years, four of which were fatal.



Deer have been affected in a number of ways by the drought. The survival of fawns is down to 46 per 100 does along the coast and 35 per 100 in the Monterey area; the norm is 68-80 per 100. A harsh winter in 1978 could easily kill the many weak and poorly nourished deer in the state. According to Fish and Game biologists, there have been many more emaciated, parasitized, road killed and poisoned deer in recent months. One particular poison is associated with the tannic acid in acorns. In small quantities and in conjunction with proteins acorns are harmless, but as an exclusive diet, they are fatal.

The last dreary note is that, as the steam flow decreases, the chance of concentrated pools or floats of toxins (sewage, industrial effluents, and pesticides) increases.

People around the state are losing their jobs, their lawns, their swimming pools; the state is losing industries; wild animals are losing their lives.

adapted from an article by Karen Peterson M.W.

CURRENT LITERATURE

The following is a list of current articles that may be helpful for those in various types of rehabilitation work. The periodicals mentioned are available at most universities, and single copies of each article are kept at the Marin Museum of Science.

"Transmission of Two Strains of Epizootic Hemorrhagic Disease Virus in Deer by Culicoides variipennis," Foster, N.M. et al., Journal of Wildlife Diseases, Vol. 13, No. 1, Jan. 77.

"Studies on Endoparasites of the Mourning Dove in the Southeast U.S.," Barrows, P. et al., Journal of Wildlife Diseases, Vol. 13, No. 1, Jan. 77.

"Inclusion Body Disease of Falcons (Herpesvirus Infection) in an American Kestrel," Journal of Wildlife Diseases, Vol. 13, No. 2, April 77.

"Aspergillosis in Common Crows in Nebraska, 1974," Zinkle, J. et al., Journal of Wildlife Diseases, Vol. 13, No. 2, April 77.

"Supplemental Data on the Food Habits of the Western Gray Squirrel," Stienecker, W., California Fish and Game, Vol. 63, No. 1, Jan. 77.

"Extension of Red Fox Distribution in California," Gray, Randall, California Fish and Game, Vol. 63, No. 1, Jan. 77.

"Experiments on Starvation and Recovery of Mule Deer Does," de Calesta, D. et al., Journal of Wildlife Management, Vol. 41, No. 1, Jan. 77.

Blood Parasites from Band-tailed Pigeons," Stabler, R., et al., Journal of Wildlife Management, Vol. 41, No. 2, April 77.

"Seasonal Vulnerability of Gray Squirrels to Hunting," Mosby, H. et al., Journal of Wildlife Management, Vol. 41, No. 2, April 77.

"Traffic Casualties. Barn Owls on the Decline," Ratcliffe, E., Wildlife, Aug. 77.

"Badgers and Bovine T.B.," Overend, E. Wildlife, Sept. 77.

THE USE OF KETAMINE HYDROCHLORIDE IN MAMMALS

Ketamine hydrochloride has been used with great success to induce immobilization and anesthesia in a variety of species. Its suitability for use in wildlife is due to several factors including: rapid onset of effect; varying degrees of anesthesia, dependent on dose; lack of necessity for obtaining exact weights, due to a wide safety margin. Also, effects are not cumulative as with barbiturates; doses can be repeated frequently, and it is compatible with other general anesthetics. Emesis is rare, therefore, withholding food is not necessary. In addition the drug is not readily degraded by heat or cold.



To use Ketamine properly one should be aware of four other factors. Throughout all levels of anesthesia, muscle tone is maintained. This may be an indication for use of additional drugs, dependent upon the procedure being done. These should be given only by a veterinarian. Secondly, excessive salivation is a frequent occurrence. This should not be a problem since swallowing reflexes are unimpaired. Atropine may be used if salivation interferes with the treatment. Thirdly, external stimuli must be kept to a minimum during induction and recovery. And lastly, Ketamine is contraindicated in animals with renal disease.

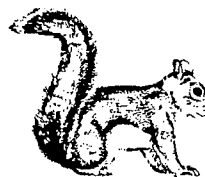
Doses are dependent upon the level of anesthesia required, the species, and the weight of the animal. There is a progression through the stages of excitation and ataxia, followed by catalepsy, anesthesia with analgesia, leading to convulsions, and eventually respiratory depression. For our purposes only the level of catalepsy is necessary. This is a condition in which the mammal is unconscious but still responds to noxious

stimuli. The eyes are open, laryngeal and pharyngeal reflexes are unimpaired, and respiration, body temperature, and muscle tone remain normal.

The next stage is described as dissociative, with the patient enjoying profound analgesia but appearing to be only superficially asleep. One can determine the level of anesthesia by noting the animal's resistance to handling, its degree of coordination, and its muscle tone.

As to the actual doses used, the amount will vary, even among animals of the same species and equal weight. In general, the larger the animal the less Ketamine it requires per pound. This may be due to differences in basal metabolic rate. Marine mammals as well as young mammals require a lesser dosage, due to the high percentage of total body fat. Below are average dosages based on weight. (Information regarding ungulates is not included.) Under all circumstances a veterinarian should be in charge of dosage and administration of the drug.

<u>Weight (kg)</u>	<u>Dose (mg/kg)</u>
1-2	50-40
2-3	45-40
3-4	40-35
4-5	35-40
6-9	30-25
100-150	6.7-5.6 (marine
500-700	3.7-2.5 mammals)



An intramuscular injection of the appropriate dose is given in the gluteal or hamstring muscle. Subcutaneous injections will be absorbed too slowly to provide any level of immobilization. If, after five minutes, the required stage of anesthesia is not reached, repeat the injection with half the original dose. The effect should last five to 20 minutes; initial recovery is 45 to 120 minutes; and full recovery may be as long as 14 hours or more.

Recovery should take place in a draft free cage which is padded and dark. The animal should be placed either on its side or abdomen with the mouth open. This minimizes the chance of aspiration due to excessive salivation, and thus eliminates the need for atropine. Since Ketamine is excreted by the kidneys, one can facilitate recovery by providing plenty of fluids for the animal once it is mobile. Debilitated animals may require forced fluids, but take care not to induce vomiting, which may lead to aspiration. Food may also be provided at this time.

With careful administration and observation, Ketamine hydrochloride is the drug of choice for simple immobilization and anesthesia during which minor procedures may be conducted.

References

"Answers to Some Common Questions About Ketamine HCl," Beck, C.C., Vet Med Small Animal Clinic, 71(7)905-8, July 1976.

"Clinical Observations on the Use of Ketamine HCl in Wild Carnivores," Ramsden, R.O. et al., Journal of Wildlife Diseases, 12(2)221-5, April 76.

"Ketamine Immobilization of Northern Elephant Seals," Briggs, G.D. et al., Journal of the American Veterinary Medical Assoc., 169(7)546-8, Oct. 75.

"Immobilization of Harp Seals, *Phoca groenlandica*, by I.V. Ketamine," Comp. Biochemical Physiology, 56(2)75-6, 1977.

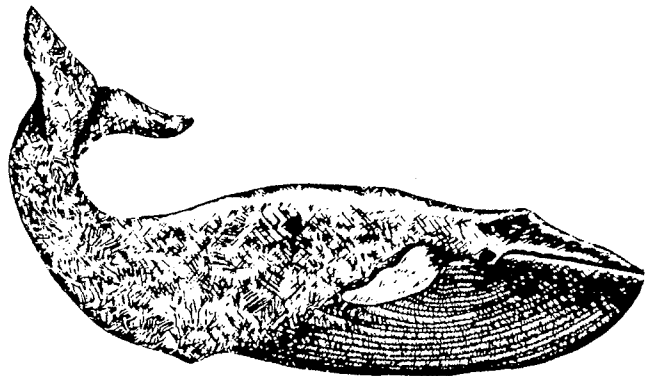
"The Use of Ketamine HCl as an Anesthetic for Raccoons," Gregg, D.A., et al., Journal of Wildlife Diseases, 11(3) 335-7, July 1975.

J.A.



GREENPEACE ON THE MOVE

Many conservationists in the Bay Area are familiar with the activities of Greenpeace. Some members of their group recently returned from the Arctic, after spending, collectively, ninety days monitoring and/or interfering with the activities of Russian whaling vessels. From their observation, it is learned that the sperm whale stocks are being depleted to an extent never before admitted. In addition, of the fifteen whales successfully caught by the whalers, most were undersized.



As a result of this last anti-whaling campaign, Greenpeace will notify the proper authorities of their observation that the sperm whale is approaching the "Endangered" level. Governmental agencies are still evaluating population statistics in preparation for setting spring quotas.

A minimum of 170,000 harp seal pups will meet with horrible deaths this spring in Canada. Again Greenpeace will involve itself as a disruptor in the seal hunt, but to what extent still has not been disclosed. Look for an official statement in late December.

Greenpeace travels, literally, to the "ends of the earth" to do something for the animals they are monitoring. They are to be commended. They go on behalf of most of us and deserve our financial, as well as moral, support.

If you would like to help, their mailing address is:

Greenpeace
Bldg 240 Fort Mason
San Francisco, CA
94123

C.P.

PENINSULA HUMANE SOCIETY'S WILDLIFE TEAM

Organized in April 1972, under the aegis of Peninsula Humane Society in San Mateo, the PHS Wildlife Team cares for all distressed and orphaned non-domestic animals in San Mateo County. This year, we expect to receive into the shelter 4500 to 5000 wild animals of all species, brought to us by private individuals, government agencies, and our own animal control officers.

As a division of Peninsula Humane Society, the Wildlife Department benefits in many ways. The in-house veterinary staff tends to those animals in need of serious medical attention. Familiarity of the public with PHS permits us to draw upon its popular support and funding. Officers from the Animal Control Department investigate and assist with cruelty complaints, rescue calls, and

transport to our facility of debilitated animals from around the county.

The main function of the PHS Wildlife Team is to provide immediate first aid and rehabilitation care to injured and abandoned wildlife and to victims of environmental catastrophes in the Bay Area. In conjunction with this goal is an awareness of the critical importance of public education in wildlife ecology, biology, and management. As the principal rehabilitation agency in San Mateo County, we deal with a wild variety of species and situations arising from the incompatible requirements of an ever-increasing human population and a rapidly dwindling wildlife pool.

Kathleen Taft, PHS Wildlife Coordinator

CALIFORNIA LEGISLATIVE UPDATE

<u>Bill</u>	<u>Author</u>		<u>Status or Committee</u>
AB 1448	Statham	Makes it unlawful to sell skins, teeth and hides of bears (were finding dead bears with no teeth).	Law-Chapter 1208
SB 49	Nejedly	Sea turtles, extends permits for taking eggs.	Governor vetoed
SB 324	Behr	Allows damages against local agencies for wrongfully destroying any protected bird, mammal, fish, reptile or amphibian.	Law-Chaper 767
SB 414	Johnson	Allows antelope to be killed by property owner who claims to suffer losses from said animals.	Governor vetoed
SB 490	Roberti	Movie cruelty. Prohibits intentional killing or cruelty in making motion pictures.	Assembly Judiciary Hearing in January
SB 522	Dunlap	Extends mountain lion protection until 1983.	Law-Chapter 390
SB 575	Stiern	Mammal damage. Assesses wool growers for depredation control programs.	Defeated
SB 611	Dunlap	Anyone in possession of a spotlight for night hunting is now liable for a citation.	Law-Chapter 1029
SB 637	Ayala	Would have exempted Fish and Game from Environmental Impact Reports.	Defeated
SB 925	Carpenter	Driver who hits an animal must stop and notify humane society or local animal control agency.	Senate Transportation Hearing in January

"HELP!" IS NOT A HELP!

"Help!" is a manual recently published by the New York Zoological Society which deals with the techniques of de-oiling birds involved in oil spills. It is the position of the International Bird Rescue Center (IBRRC) of Berkeley, CA that many of the methods outlined in this booklet are dangerous, both to the birds and to the persons treating them.

A full critique of "Help!" is available from IBRRC upon request. It touches on such points as:

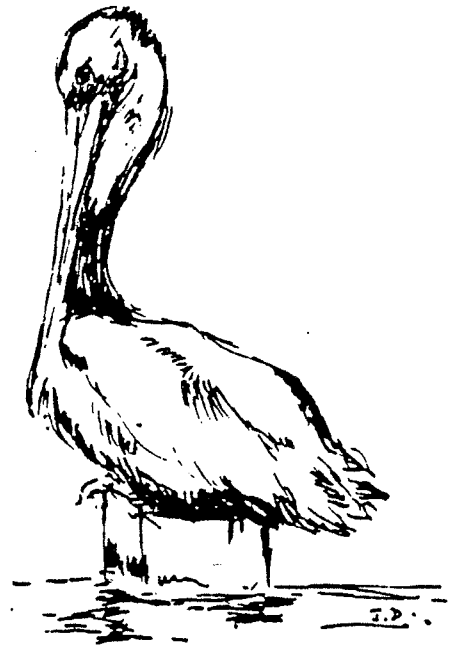
1. Do not attempt the use of solvents. Shell Sol 70 is flammable. The flash-point is 104 degrees, not 107 degrees, as mentioned in the manual.

2. A simple 15%-20% solution of detergent is sufficient for all but the most tarry, aged oils.

3. Detergents act as wetting agents and must be thoroughly rinsed.

4. Release criteria are vague and insufficient to determine if a bird is actually releasable. Release of the birds cleaned is the desired result of an oiled bird rehabilitation effort; and, consequently, deserves far more attention to the subject than outlined.

5. Some points on animal care are inadequate or incorrect. For instance, some birds, even when fully oiled, have normal temperatures and should not be arbitrarily put under heat lamps until cleaned.



6. The veterinary care section is at once too detailed for the needs of a veterinarian familiar with the work, and not detailed enough for the layman who might consider setting up a cleaning station without veterinary medical supervision.

"Help!" was circulated through "Animal Kingdom", a magazine sent to members of several zoological societies throughout the country. IBRRC does not sanction its use during a spill.

If you wish to volunteer for this type of work, do so before an actual spill. Contact your local Fish and Wildlife Service or IBRRC. The U.S. Fish and Wildlife Service has jurisdiction over wildlife involved in a spill, and your actions will be answerable to them.

If you have any questions, please address them to:

International Bird Rescue Research Center
Aquatic Park
Berkeley, CA 94710

IBRRC
C.P.

In our continuing efforts to improve the newsletter, the editorial staff would appreciate receiving copies of your own publications. We also encourage you to send us any comments, criticisms, announcements, and articles you would like to have published.

NEW BOARD MEMBERS

Congratulations to the recently elected board members of the Wildlife Rehabilitation Council:

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Davis

GARY BOGUE

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INFORMATION SHEETS AVAILABLE FROM WRC

The following is a list of the informational literature available from WRC. Copies may be ordered at a cost of 50¢ each (postage included). Please pay by check only. Order from: WRC, 50 Pine Ridge Way, Portola Valley, CA 94025.

Care and Feeding of Orphaned Birds

Raptor Care

Emergency Care of Tree Squirrels

Vector Born Disease Potential in Mammals

Care of Sick and Injured Birds

Gardening to Discourage Deer Damage

Care and Feeding of Bushtit Babies

Great Horned Owl Case Study

Necropsy Precautions & Procedures

WRC Wildlife Care Problem and Solution
Paper #1

Care of Orphaned Raccoons

Care and Feeding of Jack Rabbits

Cliff Swallows

Additional literature available:

"Avian Drugs and Dosages" by Chuck Galvin,
DVM (\$3.50)

"Our Hummingbirds" by Louise Blakey (\$1.30)

"Raptor Care and Rehabilitation" by Dave
Garcelon and Gary Bogue (\$6.00 for WRC
members and \$10.00 for non-members.
For this book only send your check to:
Gary Bogue, A. Lindsay Jr. Museum,
1901 First Ave., Walnut Creek, CA 94596

WILDLIFE JOURNAL Editorial Staff:

Joyce Abrams

Marin Museum of Natural Sciences

Ann Brice

San Francisco SPCA

Carol Patterson

International Bird Rescue

Martha Williams

Marin Museum of Natural Sciences

Directions to The SF/SPCA:

QUARTERLY WRC MEETING

The next WRC meeting will be held on January 7, 1978 at 10:30 at The San Francisco SPCA, 2500 Sixteenth Street, San Francisco.

The speaker will be Marc Weber, Curator of Animals at The California Marine Mammal Center.

From Marin County: From Golden Gate Bridge continue on 101 which turns into Van Ness. Stay on South Van Ness to 16th St. Turn left. Go 3 blocks.
From the East Bay: Take 9th St. Exit off 80. Go down Harrison to 16th St. Turn left. Go one block.
From the Peninsula: Go up 101 to the Vermont Exit. Turn left onto Vermont. Continue 2 blocks to 16th St. Turn left. Go 6 blocks.

WILDLIFE REHABILITATION COUNCIL MEMBERSHIP APPLICATION

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REHABILITATION



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