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SOURCES OF INFORMATION ON WILDLIFE DAMAGE CONTROL

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In the area of wildlife damage control, people encounter a great diversity of problems for which they need effective, timely solutions. Published materials or sources of help are often scattered, difficult to locate, or even unknown to many who work in this discipline.

Let me begin with three stories. They are fictional, but they are created from the variety of wildlife-human conflicts that occur in California. Thus, they represent the reality of human attempts to deal with wildlife damage.

The first story: Dennis Turner retired early after owning an automobile dealership in the San Gabriel Valley, east of Los Angeles. He and his wife Ruth bought a 70-acre ranchette in a rural county in Northern California. Their property is primarily oak woodland-rolling grassy hills dotted with blue oaks and occasional rock outcrops, but also including a 10-acre walnut orchard on the lower, flat portion of the property. Shortly after moving into their new home, Dennis took note of the numerous rodent burrows, caused by California ground squirrels, in the earthen face of a dam constructed for holding runoff water adjacent to the walnut orchard. Being familiar with the many erosion and landslide problems of Southern California, he became increasingly concerned about the activity of these rodents and their effect on the integrity of his pond. But never having owned this type of land or dealt directly with grounds squirrels before, he had no idea of what could or should be done to control their burrowing.

The second story: Russ and Jeanie Spencer have, for the past 12 years, raised llamas on their ranch in coastal central California, a short drive from San Luis Obispo. They've found llamas to be profitable, and have sold many good breeding pairs for several thousands of dollars. Lately they've been involved in training some of their llamas as pack animals for outfitters who supply them to hikers and campers for use in recreation in the Sierra Nevada mountains. One morning when Jeanie went out soon after sunrise to check the llamas, she noticed her two-year-old female was missing. Further investigation at the far side of the pasture revealed signs of a struggle, and Jeanie became increasingly concerned as she followed drag marks across the pasture toward the fence, and beyond into a small grove of live oaks. There, partly covered with leaves, she found the dead llama, obviously killed and fed on by a predator. There were claw marks in the surrounding soil. Jeanie ran back to the house and called to Russ to show him what had occurred.

The third story: James Garcia is pastor of a historic church near downtown San Diego. The congregation worships in a building that dates to near the beginning of the century, and which has a wooden bell tower above the entrance. Domestic pigeons have, in the last several years, been increasing their use of the bell tower for roosting. When Roger Holden, the 82-year-old deacon, rings the bell before worship every Sunday morning-just as he's done for the past 40 years—he is greeted by a flutter of flapping wings, a few loose feathers, and an occasional bird dropping which nearly misses a couple of visitors hurrying into church, dressed in their Sunday best. And nearly every week, Deacon Holden complains to Pastor Garcia that something's got to be done about those pigeons, and by golly, he's going to do it himself if he has to. Pastor Garcia cringes at the thought of his elderly deacon climbing a rickety ladder up into the bell tower. He wonders if he might sneak down to the church some Saturday morning at dawn with his son's pellet rifle and do in some of the pigeons before anyone notices. After further consideration, he realizes the risk isn't worth the grief he'd face if the women's fellowship were to find out their dear pastor had personally murdered those poor, innocent birds that were only seeking shelter in a place of worship. He gets out the telephone book and starts thumbing through the Yellow Pages.

We'll return to these stories momentarily. The timely, effective solution to wildlife damage problems often depends upon having access to specific recommendations or information, or of knowing where to go to pursue such information.

Table 1 at the end of this paper lists agencies and companies within California which are involved in some aspect of wildlife damage control. These include federal, state, county, and local agencies as well as private pest control business. I have provided a brief description of the types of wildlife damage control situations in which each may be involved, and the services that may be provided. Figure 1 is a map of the USDA-APHIS-Animal Damage Control districts within California, indicating the district supervisor responsible for each. Most counties in the state currently participate in this cooperative program, which provides a service through personnel stationed throughout each district.

Table 2 is a selective listing of books and magazines on wildlife damage control. Some are currently out-of-print but may be available in some libraries.

Table 3 lists three professional organizations whose members have significant activities related wildlife damage control or research related to this topic. They provide the opportunity to network with other professionals in this field, and they assist members to keep up with current technologies and topics.

Lastly, Table 4 is a listing of the current availability of proceedings of recurring conferences and workshops in the United States which have dealt with wildlife damage control. While some are out of print, many of these compilations of papers still are available. They are an excellent source of information for persons seeking to

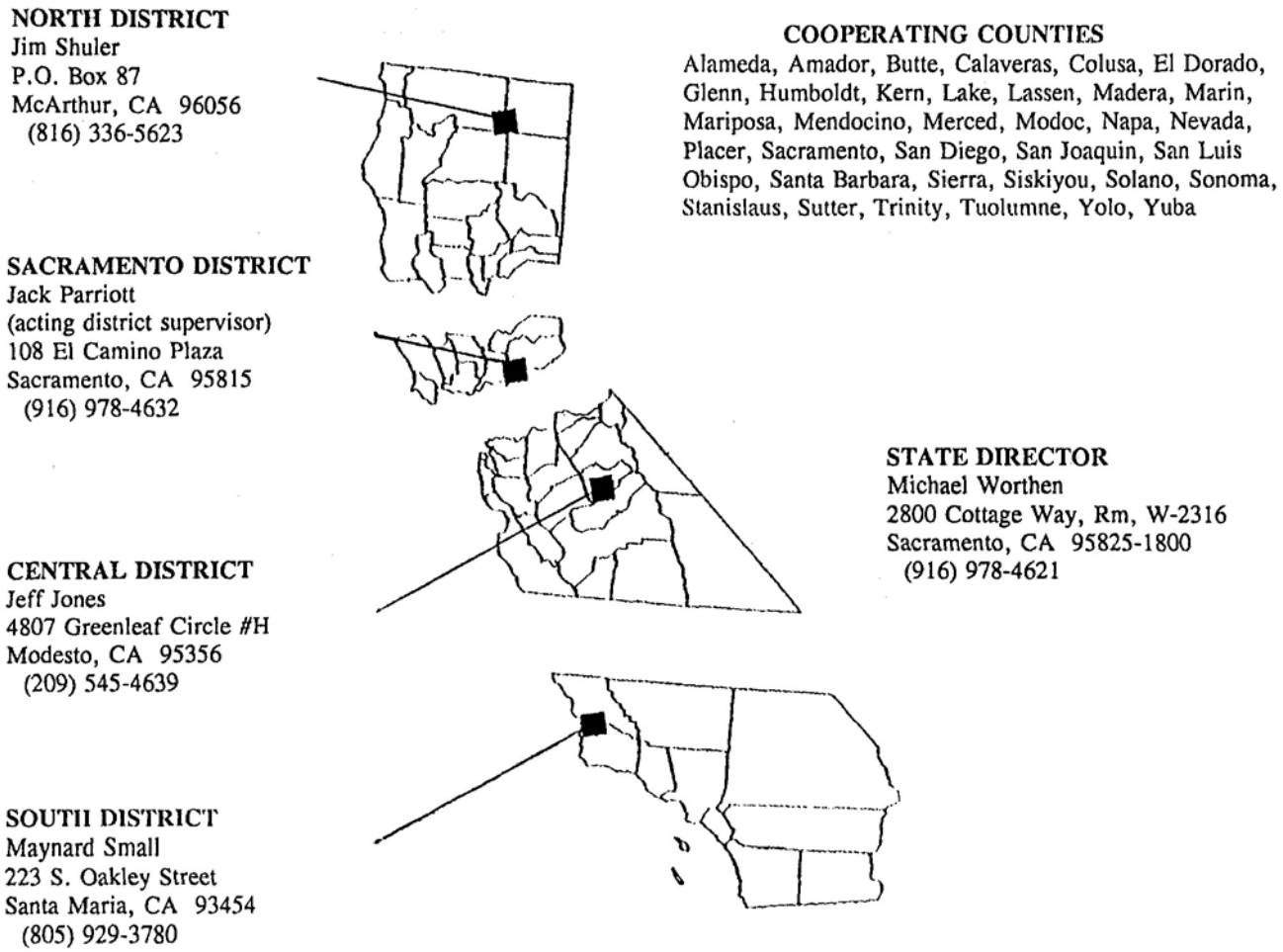

Figure 1. USDA-APHIS Animal Damage Control Districts within California.

become more knowledgeable about wildlife damage problems and their solutions.

Let's return to our three stories: Dennis Turner, after talking to his neighboring landowners, learned that the county Agricultural Commissioner's office sells a ready-to-use bait for controlling ground squirrels, consisting of grain treated with the anticoagulant chlorophacinone. Next door at the Cooperative Extension office he was able to purchase a pamphlet on ground squirrel control, which gave specific and detailed instructions not only on use of toxic bait, but also discussed burrow fumigation, trapping, and habitat modification. Armed with this new information, he felt much better about his ability to keep his ground squirrels population in check.

Russ and Jeanie Spencer had never suffered the loss of any of their llamas to a predator before this time. It looked to them from the condition of the carcass and the amount eaten that it must have been a big predator—like a mountain lion. They called the Department of Fish and Game office listed in their phone book. The local warden, after hearing their description of the event, advised them to call the USDA-APHIS-Animal Damage Control specialist in their area and request he meet the warden at the ranch as soon as possible. Once on the scene, the USDA specialist quickly verified that a lion was responsible. The Fish & Game warden issued a depredation permit for the lion to be taken, and the USDA specialist released his pack of trailing hounds, which soon picked up the lion's scent and began

following it across the hillside and onto adjacent public land. It was still early enough in the morning for the trail to be fresh, and within a half mile the dogs had the lion at bay, up in an oak tree. This allowed the USDA specialist to dispatch the lion with his rifle. It was a young adult male lion, about 110 lbs., and was no doubt the one responsible for the kill. If left on its own, it would have likely killed another llama or killed livestock on another ranch in the area. The Spencers were appreciative of the quick action. After hearing about the marked increase in lion sightings in the county, they discussed with the USDA and Fish and Game personnel possible changes in their herd management practices to reduce the likelihood of future attacks.

Pastor James Garcia found in the Yellow Pages a private pest control operator's advertisement which read, "Experienced in bird control: pigeons, sparrows, and swallows." The PCO inspected the church bell tower and recommended exclusion, using plastic mesh netting, as the most appropriate solution. Two days later, the netting was installed and much to Pastor Garcia's delight, it was essentially invisible from ground level. Furthermore, he was pleased that the solution didn't involve killing the pigeons—for which some of the women in the congregation wouldn't have forgiven him anytime soon. The cost of the netting installation was well worth it, he reported to the church council at their next meeting.

In each of these stories, the successful solution to the conflict was dependent upon the persons involved having specific information on an appropriate solution. In some cases, professional assistance was needed. Had the situation been somewhat different, other solutions may have been more appropriate. Each wildlife damage situation is unique, and the successful solution to each depends upon having knowledge of a variety of options from which to choose.

My hope is that the sources of information and assistance listed here will serve as a starting place for solving wildlife-human conflicts. For those outside California, perhaps this information can serve as an example of lists you could create and distribute within your own state or locality. By sharing such information, we can all assist each other in providing the best advice and recommendations to deal with wildlife damage.

ACKNOWLEDGMENTS

I thank those who assisted me in obtaining information on current availability of the various Proceedings, specifically Bill Andelt, Ross Byers, Paul Curtis, Sydni Gillette, Bob Henderson, Scott Hygnstrom, Bill Jackson, Mike King, and Rex Marsh. Several members of the Vertebrate Pest Council reviewed this information for completeness and provided excellent suggestions for additions.

Table 1. Sources of Assistance and Information for Controlling Vertebrate Pest Damage.

AGENCIES

Federal

U.S. Dept. of Agriculture - APHIS - Animal Damage Control
Operational animal damage control services in 36 cooperating counties in California; provides on-site assistance, as well as recommendations for self-help situations. Expertise in problems involving predators, bird depredation in agriculture, and various other problems involving wildlife damage and nuisance situations.

Authority to deal with damage involving migratory birds statewide, delegated from U.S. Dept. of Interior - Fish & Wildlife Service.

For local assistance, contact the County Agricultural Commissioner, USDA-APHIS-ADC district field assistant, or district supervisor (see attached map).

U.S. Dept. of Interior - Fish & Wildlife Service
Maintains enforcement authority for violations of federal law involving migratory birds and federally endangered species.

State

California Dept. of Food and Agriculture
Provides expertise and leadership, through the County Agricultural Commissioners' offices, particularly in relation to wildlife damage problems involving agricultural production.

California Dept. of Fish and Game
Involved primarily in wildlife damage involving game animals or other species afforded protection under state law, including state-listed endangered or threatened species. Can issue kill permits for certain species which have caused damage. Enforcement authority for state laws regarding all wildlife.

California Dept. of Health Services
Involved in situations of quarantines or outbreaks of diseases of human health concern (e.g., plague, rabies) associated with wildlife. Can provide expertise to local agencies.

California Dept. of Pesticide Regulation
Provide guidance for and state registration of pesticide uses, and serve as lead agency for pesticide use enforcement. Have responsibility for worker health and safety issues related to pesticides and pesticide application.

County or Local Agencies

County Agricultural Commissioner
Provides local informational assistance or on-site advice with vertebrate pest problems. Issue permits for possession and application of certain pesticides. Has enforcement authority for pesticide uses.

Cooperative Extension Service - University of California
Primarily an informational resource for self-help, providing pamphlets, leaflets, information on local sources of supply, and in some instances on-site assistance with diagnosis and recommendations on solving specific problems.

County Department of Health
Informational resources especially in regard to wildlife problems with public health implications. Involved in enforcement actions regarding sanitation conditions which promote wildlife pest problems.

Animal Control
Primarily involved in management of free-ranging domestic or nuisance animals. Agencies are usually city-funded, so some rural areas may not be served.

Special Districts: Mosquito & Vector Control
Provide information and operational control involving commensal rodents and other vectors of public health significance.

Private Pest Control (fee **for** services)

Structural Pest Control Operators
Primarily involved in commensal rodents (rats, mice) and urban or suburban bird control.

Urban & Suburban Landscape and Nuisance Animal Control
Conduct control work in urban and suburban situations involving wildlife damage to landscaping, and nuisance animal problems.

Agriculture & Forestry Animal Control
Typically contract to provide operational control programs for wildlife damage in agricultural production and forests.

Agricultural Pest Control Advisors
Make recommendations on control methods and strategies, typically in agricultural situations.

Table 2. Sources of Information on Vertebrate Pests and Damage Control.

PUBLICATIONS:

Books

Clark, Jerry P. 1986. Vertebrate Pest Control Handbook. Div. of Plant Industry, Calif. Dept. of Food and Agriculture, Sacramento. [Order: CDFA, 1220 N Street, Sacramento, CA 95814. $17.00.]

Fitzwater, William D. 1979. Encyclopedia of Structural Pest Control, Vol. IV: Vertebrate Pests. National Pest Control Assoc, Dunn Loring, VA. 248 pp. (currently out-of-print; revised edition expected during 1994).

Mallis, Arnold. 1990. Handbook of Pest Control. 7th Ed. Franzak & Foster Co., Cleveland. 1151 pp. (includes chapter on commensal rodents and on other vertebrate pests). [Order: Franzak & Foster, Book Dept., 4012 Bridge Ave., Cleveland, OH 44113. $89.00.]

National Pest Control Association. 1982. Bird Management Manual. 118 pp. [Order: National Pest Control Assoc., 8100 Oak St., Dunn Loring, VA 22027. $60.00 (non-member)].

Salmon, Terrell P. and Robert E. Lickliter. 1984. Wildlife Pest Control Around Gardens and Homes. Publ. 21385, Cooperative Extension, Division of Agriculture and Natural Resources, University of California. [Order: ANR Publications, U.C., 6701 San Pablo Ave., Oakland, CA 94608-1239. $8.00.]

Hygnstrom, Scott E., Robert M. Timm, and Gary E. Larson. 1994. Prevention and Control of Wildlife Damage. Nebraska Cooperative Extension Service, Gt. Plains Agricultural Council, and USDA-APHIS-Animal Damage Control, Lincoln, NE. [Order: Wildlife Damage Handbook, 202 Natural Resources Hall, Univ. of Nebraska, Lincoln, NE 68583-0819. $40.00.]

Womeldorf, Donald J. & Thomas D. Peck (Eds.). 1977. Community Pest and Related Vector Control. 2nd Edition. Structural Pest Control Operators of California, (currently out-of-print.)

Magazines

Animal Damage Control. P.O. Box 224, Greenville, PA 16125. Subscription: $15/year.

Pest Control. 1 East First Street, Duluth, MN 55802. Subscription: $25/year.

Pest Control Technology. 4012 Bridge Ave., Cleveland, OH 44113. Subscription: $30/year.

Wildlife Control Technology. RJ.E. Publications, P.O. Box 5204, Glendale Heights, IL 60139. Subscription: $15/year.

Table 3. Professional organizations involved in wildlife damage control.

ORGANIZATIONS

National Animal Damage Control Association. Dues: $20 annually.
Send membership application to: Wes Jones, Treas., Rt. 1 Box 37, Shell Lake, WI 54871. Monthly newsletter: The Probe.

National Urban Wildlife Management Association. Dues: $15 annually.
Send membership application to: William Bridgeland, Treas., 2801 Benson Mill Rd., Sparks, MD 21152.
Periodic newsletter: National Urban Wildlife Management News.

The Wildlife Society. Dues: $58 annually (includes publications). Additional dues to participate in Wildlife Damage Management Working Group, $5 annually. 5410 Grosvenor Lane, Bethesda, MD 29814-2197.

Table 4. Availability of Proceedings.

Year	ASTM Symposium: Vertebrate Pest Control & Management Materials	Bird Control Seminar	Eastern Wildlife Damage Control Conference	Eastern Pine & Meadow Vole Symposium	Great Plains Wildlife Damage Control Workshop	Vertebrate Pest Conference
1970						4th NA
1971						
1972						5th $2 VPC
1973		6th $7 BGSU				
1974					1st NA	6th $2 VPC
1975						
1976		7th $8.50 BGSU			2nd NA	7th $2 VPC
1977	1st STP 625 $26 ASTM			1st $5 VPI		
1978				2nd $5 VPI	3rd NA	8th $2 VPC
1979	2nd STP 680 $31.50 ASTM	8th $15 BGSU		3rd $5 VPI		
1980				4th $5 VPI	4th NA	9th NA
1981	3rd STP 752 $23 ASTM			5th $5 VPI		
1982				6th $5 VPI	5th NA	10th $2 VPC
1983	4th STP 817 $40 BGSU	9th $25 BGSU	1st NA	7th $5 VPI		
1984				8th $5 VPI	6th NA	11th $10 BGSU
1985			2nd NA			
1986					7th NA	12th $15 BGSU
1987			3rd NA		8th NA	
1988	5th STP 974 $28 BGSU					13th $5 VPC
1989	6th STP 1055 $18 BGSU		4th $20 Cornell		9th $2 CSU	
1990						14th $15 VPC

1991			5th $15 U Tenn		10th $10 UNL	
1992						15th $25 VPC
1993			6th* $20 U Tenn		11th $25 KSU	
1994						16th** $25 VPC

NA = not available (out of print)
*In Press. Expected to be available July 1994.
**In Press. Expected to be available August 1994.

Key: Sources of Proceedings

ASTM - American Society for Testing and Materials, Attn: Orders, Technical Books & Journals, 1916 Race St., Philadelphia, PA 19103-1187. Shipping and handling included. Checks payable to: ASTM.

BGSU - Dept. of Biological Sciences, Bowling Green State University, Bowling Green, OH 43403. Shipping and handling: $1.00 per volume domestic; $2.50 per volume if outside U.S. Checks payable to: Bowling Green State University.

Cornell - Dept. of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853-3001.

CSU - W. F. Andelt, Ext. Wildlife Specialist, 109 Wager Bldg., Colorado State University, Fort Collins, CO 80523. Shipping and handling included. Checks payable to: Colorado State University.

KSU - Division of Continuing Education, Kansas State University, 141 College Court Bldg., Manhattan, KS 66506. Shipping and handling included. Checks payable to: Kansas State University.

UNL - Scott Hygnstrom, Dept. of Forestry, Fisheries & Wildlife, 202 Natural Resources Hall, University of Nebraska, Lincoln, NE 69593-0819. Shipping and handling included. Checks payable to: University of Nebraska.

U Term - Mike King, Dept. of Forestry, Wildlife & Fisheries, University of Tennessee, P.O. Box 1071, Knoxville, TN 37901-1071. Shipping and handling included.

VPC - Vertebrate Pest Conference, c/o T. P. Salmon, Business Mgr., DANR - North Region, Univ. of California, Davis, CA 95616-8575. Shipping and handling: $4.00 for 1-2 volumes, plus $2.00 per additional volume; Outside U.S., $7.00 for 1-2 volumes, plus $2.50 per additional volume. Checks payable to: Vertebrate Pest Conference.

VPI - Agricultural Experiment Station - Winchester, 595 Laurel Grove Rd., Winchester, VA 22602. Shipping and handling included. Checks payable to: Virginia Polytechnic Institute.