1999

"VERTEBRATE PESTS OF AGRICULTURE, FORESTRY AND PUBLIC LANDS" 1999 ANNUAL MEETING

WCC-95

"VERTEBRATE PESTS OF AGRICULTURE, FORESTRY AND PUBLIC LANDS"

1999
ANNUAL MEETING

(MINUTES, ABSTRACTS, AND SELECTED SUPPLEMENTARY MATERIALS)

NOVEMBER 16-18, 1999
RENO, NEVADA

MEETING -- WCC-95 Committee
Vertebrate Pests of Agriculture, Forestry and Public Lands
November 16-18, 1999
Reno, Nevada

1999 OFFICERS

Chair:
Ray Sterner
USDA/APHIS/WS
National Wildlife Research Center (NWRC)
4101 La Porte Ave.
Ft. Collins, CO 80521-2154

Vice-Chair:
Monty Sullins
Montana Dept. of Agriculture
321 S. 24th St., West
Billings, MT 59102

Secretary:
Dallas Virchow
RM. 304, Biochemistry Bldg.
University of Nebraska
Lincoln, NE 68583-0758

Administrative Advisor:
Grant Vest, Associate Director
Agriculture Experiment Station
Utah State University
Logan, UT 84322

Arrangements:
John O'Brien
Nevada Dept. of Agriculture
350 Capitol Hill Ave.
Reno, NV 89502

MINUTES

Number and title of the regional project:

WCC-095 Vertebrate Pests of Agriculture, Forestry and Public Lands

Location and dates of the meeting:

Reno, Nevada
November 16-18, 1999

Participants/Attendees (n = 40):

Committee participants attending

Name:	Representing:
L. Askham	Bird Shield Repellent Corp., Pullman, WA
R. Baker	California State Polytechnic University, Pomona, CA
J. Baroch	Genesis Laboratories, Inc., Fort Collins, CO
J. Eisemann	National Wildlife Research Center (NWRC), Fort Collins, CO
K Fagerstone	NWRC, Fort Collins, CO
D. Freeman	Rodent Control Outfitters (RCO), Harrisburg, OR
B. Hazen	Wilco Distributors Inc., Lompoc, CA
E. Marshall	Lipha Tech, Inc., Milwaukee, WI
G. McCann	NWRC, Fort Collins, CO
G. Miller	California Dept. of Food and Agriculture (CDFA), Sacramento, CA
J. Miller	Cooperative Services Research Extension and Education Service (CSREES), Washington, DC
D. Nolte	NWRC, Fort Collins, CO
J. O'Brien	Nevada Division of Agriculture, Reno, NV
B. Petersen	NWRC, Fort Collins, CO
T. Salmon	University of California, Davis, CA
R. Schmidt	Utah State University, Logan, UT
J. Shelgren	California Environmental Protection Agency, Sacramento, CA
R. Sterner	NWRC, Fort Collins, CO
M. Symmes	Lipha Tech, Inc. Milwaukee, WI
L. Sullivan	University of Arizona, Tucson, AZ
N. Svircev	HACCO Inc., Madison, WI
J. Thompson	HACCO Inc., Madison, WI
R. Timm	Hopland Research and Extension Center, Hopland, CA
T. Van Deelen	Illinois Natural History Survey, Champaign, IL

G. Vest	Utah State University, Logan, UT
D. Virchow	University of Nebraska, Lincoln, NE
D. Whisson	University of California, Davis, CA
G. Witmer	NWRC, Fort Collins, CO

Others attending:	**Representing**
A. Basnight	Lipha Tech, Inc., Milwaukee, WI
D. Bryson	Lipha Tech, Inc., Milwaukee, WI
S. Bulkin	U.S. Forest Service, Oregon
S. Chapin	Lipha Tech, Inc., Camden, OH
N. Condos	CDFA, Sacramento, CA
D. Fox	Lipha Tech, Inc., Milwaukee, WI
T. Hall	USDA-Wildlife Services, Reno, NV
J. Hran	Lipha Tech, Inc., Milwaukee, WI
S. Smith	Lipha Tech, Inc., Milwaukee, WI
M. Sullins	Montana Dept. of Agriculture, Billings, MT
C. Tanner	Lipha Tech, Inc., Milwaukee, WI
R. Todd	Lipha Tech, Inc., Lansing, NY

ADOPTED AGENDA[1]

Convening of Sessions (Tuesday, 16 November)

~1:10-1:30 p.m.

The Chair, Ray Sterner, welcomed the participants/attendees to the sessions. He noted that a few participants, particularly from the NWRC in Fort Collins, and specifically, Patricia Worthing (invited speaker), would arrive later in the afternoon due to airline flight schedules; Ms. Worthing replaced T. Sexson as presenter for the US Fish and Wildlife Service (USFWS). Ray was optimistic that the group would find the afternoon's forum informative of the issues surrounding the petition to list the black-tailed prairie dog as threatened under the Endangered Species Act.

The Chair then asked The Advisor, Grant Vest, to say a few words; Grant mentioned the successful re-authorization of the WCC-95 for 5 years and the need for timely updates of address changes by participants (i.e., more discussion would occur during the Business Meeting).

[1] The Proposed Agenda is contained in Supplementary Materials (pg. 40); unforeseen delays of speakers, late requests by attendees to make presentations, etc. caused departures from the planned agenda.

Prairie Dog Forum

~1:30-5:00 p.m.

The Chair began the afternoon forum which dealt with the National Wildlife Federation's (NWF) recent efforts to have the black-tailed prairie dog listed as a threatened species by the US Fish and Wildlife Service (USFWS); he played a brief tape recording taken from the National Public Radio's November, 1998 segment (see www.PBS.org; search for prairie dog) by way of introduction to the afternoon's topic. The following speakers then made 20-30 minute presentations:

Sterling Miller, a biologist of the National Wildlife Federation's (NWF) Northern Rockies Regional Office, Missoula, MT, gave an overview of the NWF's rationale for seeking a USFWS listing of the black-tailed prairie dog as a Threatened Species (TS) under the Endangered Species (ES) Act; he also distributed some copies of *Prairie dogs: the case for listing* (21 pp) prepared by Mark Van Putten and Sterling D. Miller.

Monty Sullins presented a synopsis of Montana's (Dept. Of Agriculture) comments (report) to USFWS regarding the proposed listing of the black-tailed prairie dog; he handed out some copies of *Conservation plan for the black-tailed and white-tailed prairie dogs in Montana* (66 pp.) prepared by the Montana Prairie Dog Working Group (November 2, 1999 Draft).

Dallas Virchow (U.N. Lincoln) presented a slide presentation illustrating some historical ideas surrounding the prairie dog and associated species. The presentation focused on the scant historical documentation regarding prairie dog abundance and distribution during the pre-settlement period of the Western U.S. Frontier.

~3:00-3:20 pm Break

After the break, self-introductions were conducted by attendees; because of the late arrival of several attendees and guest speaker, these had been postponed from the 1:00 pm time slot. Introductions were followed by continuation of the Forum.

Patricia Worthing, USFWS, External Affairs Office, Lakewood, CO, outlined the TS/ES petition process and her agency's options for dealing with the petition to list the black-tailed prairie dog (*Cynomys ludovicianus)* as threatened under the Endangered Species Act.

Gary Witmer, NWRC, Ft. Collins, presented slides and described factors that affect prairie dog management. His presentation highlighted urban-wildlife, land-development and species-habitat issues.

An open discussion followed; questions regarding prairie dog habitat, petition process, ES legislation and State management plans were received and addressed by the presenters/attendees.

1999 Business Meeting (Wednesday 17 November)

8:30 a.m.

The Chair convened the meeting. He acknowledged the good works of Grant Vest as Administrative Advisor, Monty Sullins as past Secretary, and John O'Brien as Arrangements Coordinator.

Ray passed out several copies of last year's Minutes to those that hadn't received them or wanted to reread them, and he then asked for any discussion comments regarding the 1998 Minutes. He noted the difficulty that he had in abiding by the past pledge to present each prospective participant with an agenda prior to the 1999 Meeting (a departure to procedures mentioned in the 1998 Minutes). Those who wish to receive advanced agenda's will have to provide their e-mail addresses as part of their address block (see Address List) -- funds/time will not allow a separate mailing. Kathy Fagerstone motioned to approve last year's Minutes as published, L. Sullivan, 2nd -- motion carried.

Old Business Action Items

Proposition 4, 1998 (CA Leg-hold Trap Ban); benefit of review papers

Robert Timm reported on his informal survey of individuals/groups involved in legislative actions regarding wildlife damage management issues. Robert had contacted representatives of the Wildlife Legislative Fund, National Sportsman's Coalition, and others for their views on whether review papers on specific and "hot" issues would be of benefit to advocates of wildlife damage management positions, if received prior to ballots and other political activities. The latter group's (NSC) Chair has set a goal for NSC to get science-based information out to the public affairs offices of government agencies and other organizations. There was discussion as to whether technical reports, such as the review papers, would have proven useful to those working to defeat Proposition 4 in California in 1997. Robert also commented that most of these groups would probably benefit more from short, executive-type summaries of wildlife facts than lengthy technical papers.

Desley Whisson remarked that this group had discussed a proposed list of "white paper" topics at the 1998 Meeting, and she recalled that Dr. Howard (and others) had also intended these papers as outlets for diverse audiences (i.e., science groups, youth, etc.) -- as possible educational and outreach tools for WCC-95. (See W. Howard's comments, 1998 WCC-95 Minutes, p.14)

Jim Miller suggested that Mark Duda's group also be contacted for information on the issue.

Gary Witmer suggested forming a committee to both gather information about some audience groups but also to better identify needs and papers. Gary proposed that Robert Timm head the committee; he volunteered to help Bob.

Kathy Fagerstone volunteered to be on the committee.

Robert Schmidt suggested an alternative committee function should be to connect biologists/groups with consultants that represent agriculture, etc. at a particularly critical stage in the political process. He suggested that the *How to Work with Politicians* book by the Academy for the Advancement of Science was a useful source for such activities, and committee members may want to look at it.

Robert Timm was receptive to leading the committee; he suggested that the papers could be distributed to TWS Bulletin and other outlets. The Chair then asked for clarification of what the committee's role will be. Essentially, Robert Timm summarized the committee duties as (paraphrased): Members will gather existing bibliographic materials. They will identify potential topics for papers via networking with those involved in legislation and potential audiences. These "white" papers should be prioritized according to relevance of issues affecting wildlife damage management and the likely interest of respective audiences during the next five years.

Those interested in authoring/co-authoring future position papers or helping with the committee should contact Robert Timm (e-mail: rmtimm@ucdavis.edu; phone: 707.744.1424).

A second point of discussion also occurred at this time. Robert (Timm) suggested that attendees of WCC-95, and especially "white paper" committee volunteers, should take advantage of other travel and meeting opportunities. He suggested that a session be held at the upcoming Vertebrate Pest Conference (March 6-9, 2000, San Diego, CA). It was agreed that such an informal "get together" would be useful; Robert will coordinate.

List Server

Desley Whisson reported for Terry Salmon(absent) about a moderated list serve that was intended to be established for this group and some of its limitations regarding use. Desley would pursue possible implementation of this with Terry in 2000. Several advantages of a List Serve were mentioned (e.g., The Advisor or Chair could use it for mailing out invitations and advanced meeting agenda).

Brochure

Ray Sterner handed out his "draft" of a tri-fold brochure explaining the WCC-95, its objectives, benefits of participation and 5-year goals; he sought recommendations for revisions, distributions, etc.

John Eisemann suggested that it be distributed via the Web. Ray noted that there was past reluctance to distribute this to the general public (i.e., widely advertise the WCC-95 Meeting and thereby lose some of the informal, small-group benefits). Grant Vest mentioned that our access policies are "inclusive" (of the public). He also noted that some western states are not currently being represented at our meetings and that current members should hand out and distribute brochures to associates or to interested persons at the VPC. The brochure could also be distributed to State agriculture agencies and cooperative extension field centers. It was agreed that the brochure would probably be useful to many attendees.

As to listing a point-of-contact on the brochure, discussion followed. The Advisor felt that listing himself or other Officers would pose problems due to possible tenure changes over time. He suggested that each participant could use his/her own name and address on the brochure (i.e., as sort of a "mentor" for gaining prospective attendees or informing others about WCC-95 goals/activities). Suggestions were that the NWRC could be a contact agency, but this was discounted due to identifying a permanent person as responsible. In the end, it was thought that each participant could have unaddressed copies of the final brochure for distribution (i.e., the participant would list his/her address as the contact source and distribute these to appropriate sources).

Ray then agreed to take additional comments/revisions on the set up of the brochure until January 2000, make modifications, and place copies of this revised brochure in the distributed packets of 1999 Minutes.

Manuscripts/Reviews Coordination

This item was dealt with under *Proposition 4, 1998 (CA Leg-hold Trap Ban); benefit of review papers*. The Chair had originally agreed to coordinate review type papers as described; he mentioned that no participant contacted him during 1999 regarding the development of papers. Robert Timm agreed to lead this effort.

1998 Minutes

Approval of the Minutes was dealt with at the start of the Business Meeting (see above, Approval of 1998 Minutes). Nevertheless, Monty Sullins was acknowledged for his timely and excellent drafting of last year's Minutes.

WCC-95 Petition Renewal

The Advisor noted that the New Farm Bill established new guidelines for WCC renewal as per invited audiences to include state, federal, industry, and specific public audiences. Only two of the 11 requests for renewal were granted in March 1999 -- WCC-95 was one of these. The Cooperative State Research Extension and Education Service (CSREES) representative is now assigned and a part of this group. (Grant thanked Jim Miller for attending, and Jim pledged that either he, or a designated representative of CSREES, will be present at future WCC-95 sessions.) Grant then reiterated the need for current personal information from this year's participants and recirculated the membership (address) list. He also invited those who had not submitted an Appendix H Form (become a Participant) to do so.

Conference Fee and Discretionary Use of Funds

The Chair reviewed details of this year's scheduled guest speaker (Sterling Miller, NWF), including a decision to partially reimburse Sterling's travel. Ray asked about discretionary use of funds by officers for potential decisions regarding allocations from the WCC-95 treasury in the future.

Robert Schmidt said that the executive officers should have authority for discretionary funds. Others concurred.

Robert Timm made a motion to have the elected officers take authority for the use of discretionary funds in the treasury. Discussion followed as to how this affects the current desire to keep the treasury small (200 plus dollars) but stable. Judy Thomson 2nd. Motion carried unanimously.

Desley Whisson motioned that the registration fee be maintained at $25 to $30 to accommodate room rental and associated conference costs. Rex Baker 2nd. Motion carried.

Cooperation with Wildlife Damage Management Cooperative Group- Northeastern Region

Ray presented a short video tape narrated by Paul Curtis of Cornell who reviewed that group's history since 1987. Current participants of state fish and wildlife agencies form the group: those bounded by PENN, NY, VA, WV, and ME. Also, Regional USFWS, NPS, University Penn, VPI, MD, and Rutgers staff participate. The group is currently funded by the Regional Association of Fish and Wildlife Agencies. The Northeastern group has four priorities: (1) regional outreach–act as a clearinghouse, (2) test/develop wildlife damage management techniques, (3) foster human dimensions research and community processes, and (4) administer the cooperative and maintain funds. Currently, the group functions as an open meeting/discussion forum. The Wildlife Management Institute has been proposed to manage funds or distribute funds for specific projects of the group. Paul noted that there could be collaboration between the Northeastern group and the WCC-95 participants on like issues and species. Some of these may

be human dimensions issues associated with elk, mountain lion, or white-tailed deer.

In discussion, Jim Miller noted that competitive grants may be available to fund such activities of either the Northeastern group or WCC-95. Grant Vest said that current policy calls for 25% of experiment station faculty and extension personnel activities to be of a multi-state or regional nature, however he doubted that the current distribution of funds would change.

Miscellaneous Notes

Robert Timm distributed a California brochure on raccoon roundworm and a announcement for the Ninth Eastern Wildlife Damage Conference "call for papers."

Ray Sterner mentioned that NWRC will host a conference Symposium on Human Conflicts with Wildlife: Economic Considerations, August 1-3, 2000, in Ft. Collins, CO (Poster Abstracts must be submitted by 2/25/00; see www.aphis.usda.gov then click on Wildlife Services and NWRC).

Election of Officers

As an introduction to the election of Officers, The Chair described the past policy of officer rotations from Secretary to Vice Chair to Chair. It was unanimously agreed that this process was effective and should be continued.

Regarding the current election of a Secretary, Kathy Fagerstone nominated John Baroch, Desley Whisson nominated Terry Salmon, and Gary Witmer nominated Dale Nolte. Larry Sullivan motioned that nominations cease, Monty Sullins 2nd -- motion carried. Paper ballots were then created and private ballots cast.

Election Results: The new Secretary is John Baroch of Genesis Labs, Ft. Collins, CO.

Year 2000 WCC-95 Meeting Date and Location

Larry Sullivan motioned to meet at Circus Circus Hotel, Reno, NV for the 2000 Meeting, Robert Schmidt 2nd – motion carried.

There was discussion as to the dates for the 2000 Meeting. Desley Whisson noted that the analogous dates as the 1999 Meeting were November 14 to 16 of 2000 (i.e., pre-Thanksgiving etc.); she then motioned that the meeting be held during these dates, Larry Sullivan 2nd -- motion carried.

The Year 2000 Meeting will be: November 14-16, 2000 at Circus-Circus Hotel, Reno, NV.

Abstracts Submitted for 1999 WCC-95 Meeting Minutes.

Dallas Virchow announced that presenters should get abstracts of talks to either he or Ray Sterner by at least mid-December.

Funds Report–(submitted December 10, 1999 to the current Officers via U.S. mail)

1998 Balance	**$ 362.87**
1999 Circus-Circus expenses	**1,082.47**
Invited Speaker (S. Miller travel)	**100.00**
Income from Registrations (40 x $25.00)	**1,000.00**
Current Balance	**$ 180.40**

Submitted by John O'Brien, Arrangements.

Year 2000 Action Items

1. Ray Sterner will revise The WCC-95 Brochure and send out copies to participants with the 1999 Minutes (January 2000).
2. The Chair (Monty Sullins in 2000) will attempt to e-mail advanced agendas to participants.
3. Desley Whisson will pursue possible implementation of a List Server with Terry Salmon; either have operational or report on lack of accomplishment next year.
4. Robert Timm will coordinate an interim meeting of WCC-95 Participants attending the Vertebrate Pest Conference (March 6-9, 2000, San Diego, CA).
5. Robert Timm, Kathy Fagerstone, Gary Witmer, and others will identify potential topics for "white" papers on wildlife damage management issues, assemble bibliographic materials, and report on progress at next years Meeting.
6. The New Chair (M. Sullins) will maintain contact with Paul Curtis regarding future interactions between the Northeastern group and WCC-95 and report on developments next year.

Business Meeting adjourned at 10:17 a.m.

Presentations (Wednesday 17, November)

11:00 am

The remainder of Wednesday's activities consisted of presentations essentially as given in the Proposed Agenda, however, times are approximate for specific talks. One change was: J.

Thompson provided details of 1999 efforts associated with the Registration Eligibility Decision for zinc phosphide at ~3:50 pm; this substituted partially for the original talk titled **Status of zinc phosphide and anticoagulants** by Kathy Fagerstone (Kathy presented additional information on zinc phosphide and anticoagulant rodenticides on Thurs. morning). (See Abstracts for content of persentations).

11:00-11:30	**A history of wildlife damage management** J. Miller, Cooperative State Research, Education and Extension Service (CSREES), Washington, DC
11:20-11:40	**USDA/APHIS products for the new millennium** J. Eisemann, NWRC. Ft. Collins, CO
11:40-12:00	**Contraception research and status** K. Fagerstone, NWRC., Ft. Collins, CO
12:00-1:10	**Lunch**
1:10-1:35	**Invisinet–a new wildlife exclusion/containment material** L Sullivan, UA, Tucson, AZ
1:35-2:00	**Efficacy of the aerial application of methyl anthranilate in reducing blackbird damage to sweet corn, sunflowers, and cherries** L. Askham, Bird Shield Repellent Corp., Pullman, WA
2:00-2:25	**Survival of pen-reared pheasants in agricultural areas** B. Petersen (for Craig Ramey), NWRC, Ft. Collins, CO
2:25-2:50	**Update on rodent IPM research** G. Witmer, NWRC, Ft. Collins, CO
2:50-3:05	**Break**
3:05-3:25	**Dispersal of fumigants through pocket gopher burrows** D. Nolte, NWRC, Ft. Collins, CO
3:25-3:50	**Capsaicin as a model soil repellent for pocket gophers: penetration, persistence and effectiveness** R. Sterner, NWRC, Ft. Collins, CO
3:50-4:15	**Status of zinc phosphide – The RED** J. Thompson, HACCO Labs., Madison, WI

4:15-4:30 **Chlorophacinone and diphacinone: standard anticoagulant tests on rats and mice** G. McCann, NWRC, Ft. Collins, CO

4:30-4:50 **Secondary and non-target hazards of warfarin** J. Baroch, Genesis Labs, Wellington, CO

4:50-5:05 **Aluminum phosphide RED** R. Baker, CA State Polytechnic University, Pomona, CA

Continued Presentations, Special Discussions and Individual Updates (Thurs. 17 November)

~8:30- 9:00 The Future of Wildlife Damage Conferences: Recent Discussions—An Update R. Timm, UC, Davis, CA & J. Miller, CSREES, Washington DC

The topic was presented and copies of *Wildlife Damage Conferences: When, Where and Why?* (See Supplementary Materials) was distributed. Robert Timm and Jim Miller jointly outlined the issue; the recent proliferation of symposia/technical conferences has affected availability of papers and conference schedules. The Wildlife Society (TWS) annual conferences are believed to have reduced attendance at the North American Fish and Wildlife Conference as well as the regional wildlife damage control conferences (i.e., VPC, Great Plains Wildlife Damage Control Workshop, and the Eastern Wildlife Damage Control Conference). He noted that the Eastern may be held every two years, alternating with the Vertebrate Pest Conference (VPC); The Berryman Institute may act as a host or sponsor. The Wildlife Damage Working Group of TWS may control funds or help to coordinate.

Regarding discussion, Kathy Fagerstone affirmed the decision to have the system of conferences described above; she felt that the regional conferences should still be publicized nationwide. Gary Witmer suggested that the Northeastern US region may have disproportionate participation in the Eastern conference. Ray Sterner suggested that a name change to be more inclusive of national wildlife damage management issues may be appropriate for the Eastern. Dallas Virchow suggested that the Eastern Conference entertain the new name of Wildlife Damage Management Conference, making it more inclusive. Jim Miller suggested that the human dimensions aspect may gain popularity in future papers to be presented; many of these issues apply across species.

A general discussion also occurred about compiling a searchable, indexed compendium of all past conference papers on wildlife damage titles. [Note.-- The NWRC has prepared a database of all VPC papers.] No decision was reached.

~9:00-9:20 Status of zinc phosphide K. Fagerstone, NWRC, Ft. Collins, CO (see Abstract)

Kathy reviewed results of a stakeholder meeting -- a dye and bittering agent will not be required for zinc phosphide products. During discussion/comments, Rex Baker suggested that an additional waiver request might be made to add a "long handled-spoon or other implement to avoid contact with the skin" as a safety feature for baiting; this would alleviate the need for gloves in some cases.

~9:20-9:30 Special Presentation (AVMA Euthanasia) Robert Schmidt, USU, Logan, UT

Robert mentioned that he will be attending a euthanasia meeting of the American Veterinary Medical Association (AVMA); AVMA is going to revise euthanasia recommendations. He described how the AVMA decides on its recommendations and how wildlife researchers are often forced to adhere to unrealistic lab-type euthanasia procedures in the field. Still, many influential animal rights advocates can force adherence to elaborate procedures. Other points by Robert included: University IACUC committees via the Fed Animal Welfare Act are becoming more stringent about euthanasia procedures used during research activities. Also, in most states, wildlife rehabilitators have to follow AVMA regulations, but private wildlife control businesses do not. Other issues may be euthanasia method restrictions, including kill traps and CO_2. Robert will include his abstract of the AVMA discussions within these Minutes.

~9:30-9:50 Special Presentation (Leg Snares) Rex Baker, CSPU, Pomona, CA

Rex showed slides of some commercial snare and animal capture devices that he was investigating. He emphasized numerous safety concerns of operators. He described the Belisle spring snare trap as modified to eliminate the "steel jaw" exclusion and setting only one spring. He also described the Fremont snare and the Excel snare (preferred). There appears to be greater injury/trauma with these power snares than with many leg hold traps. Also, most cable diameters from the manufacturer are too small.

~9:50-10:10 Break

~10:10-10:30 Special Presentation (Anticoagulant Baiting Strategies for California Ground Squirrels) Desley Whisson, UC-Davis, Davis, CA (See Abstract)

Desley presented research results of a recent study of anticoagulant (diphacinone) baiting strategies for CA ground squirrels; several concerns of secondary toxicity hazards were noted.

~10:30-10:35 Special Presentation (Funds Report) John O'Brien

John gave a general report concerning facilities costs and funds. This year there were 40 attendees and $1,000 income. Although he had not received a final refreshment, room bill from Circus-Circus, he felt that 1999 charges would be comparable to last year. Last year's expenses were $906.00. (See final cost data under Funds Report -- Business Meeting.)

~10:35-12:00 Individual Updates

As the conclusion of the meetings, The Chair asked each individual present to make some brief comments about key activities or events that they saw as important to the group – trends or events that occurred this past year within their respective companies, agencies, or departments.

Larry Sullivan mentioned regulations and licensing/certification of NUWCOs within AZ as a growing national issue.

Nick Condos reported that RED's (zinc phosphide and anticoagulants) are taking up most of his time. All field-use rodenticide labels will now be in the "restricted use" category.

Jim Miller distributed a handout on the status of Congress passing the Conservation and Reinvestment Act. Monies for research protocols were included in this, and attendees may want to consider submitting proposals for research.

Ed Marshall reported on Lipha Tech, Inc., becoming ISO certified (International Standards of Operation) and on some secondary toxicity studies.

Tom Hall, Assistant Director, USDA-WS in NV, reported on the urbanization issue, numerous human conflicts, and wildlife relocation prohibition. He mentioned that coyote attacks of people and pets were increased.

T. Van Deelen mentioned that The Illinois Natural History Survey, Univ. IL, Urbana-Champaign, IL, was hiring a Wildlife Ecologist – Urban Wildlife and Wildlife-human Conflict Management. He handed out the Position Announcement.

Robert Schmidt noted that pigs, cats and rats were common wildlife damage problems in Hawaii (he's on sabbatical at Univ. HI). He commented on the many different perspectives within the field of Conservation Biology. He also commented on animal rights activists; many of these groups experience excellent funding, are well organized, have "found" the Web, "know the issues" and how to influence people, and have good legal advisors.

Desley Whisson noted that the CA ground squirrel is a primary focus of her research efforts. Oil spills and bird hazing activities are also of concern. She mentioned next spring's VPC in San Diego, CA and noted that it is on the www.davis.com's Web Site.

John O'Brien mentioned some Section 18 work on voles with zinc phosphide (dormant use).

Nick Svircev commented on regulatory problems posed by the need for different registrations on each size and kind of rodenticide throw pack.

Judy Thompson reiterated that the RED for zinc phosphide occupied most of her time.

Dallas Virchow reported on prairie dog quality/quantity vegetation removal and the need for more research data on prairie dog impacts to agriculture.

Kathleen Fagerstone described NWRC's planned indoor and outdoor animal facilities.

Monty Sullins reported on the prairie dog comments to USFWS; he also mentioned some Rodex (burrow fumigant) work.

Completion of Sessions (Thursday 18 November)

12:00 p.m. The Chair closed the meeting.

PARTICIPANTS/ATTENDEES

Asterisked Names (*) are Participants

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ABSTRACTS

PRAIRIE DOGS: THE CASE FOR LISTING

By
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Abstract: The black-tailed prairie dog *(Cynomys ludovicianus)* is a species on which passions and misinformation have had more management impact than science or fact. In 1902, zoologist C. Hart Merriam, without the benefit of data, declared that prairie dogs caused a 50–70% reduction in range productivity for cattle (Merriam 1902 cited in Mulhern and Knowles 1995). Merriam's opinions escalated into nearly a century-long poisoning campaign by governmental agencies and private individuals. This campaign is still being waged, albeit with reduced vigor, against very reduced population remnants of the billions of prairie dogs that once occupied the Great Plains. In many places, poisoning prairie dogs continues to garner implicit, and frequently explicit, support from state and federal government agencies charged with managing wildlife resources and public lands. The consequence of poisoning (Roemer and Forrest 1996), habitat destruction (Sharps and Uresk 1990), official neglect (Knowles and Knowles 1994), absence of shooting regulations (Graber et al. 1998), and a deadly exotic disease (Cully 1989) is a species spiraling downward toward extinction (Wuerthner 1997). These factors, plus the prairie dog's keystone role in maintaining grassland ecosystems (Miller et al. 1994, 1999; Kotliar et al. 1999), led the National Wildlife Federation (NWF) to file its first petition to list a species under the Endangered Species Act (ESA, Graber et al. 1998, available at www.nwf.org/grasslands or from authors).

Note.-- Abstract is from a handout prepared by Mark Van Putten and Sterling D. Miller.

PROCESS OF THE US FISH AND WILDLIFE SERVICE IN RESPONSE TO A PETITION TO LIST THE BLACK-TAILED PRAIRIE DOG

By
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Abstract: In July of 1998, the National Wildlife Federation filed a petition to list the black-tailed prairie dog. The U.S. Fish and Wildlife Service responded to that petition. People may think this means that the prairie dog is listed or has been proposed for listing, but that is not the case. The species has not been listed nor has it been proposed for listing. Whether either of these will occur has yet to be decided.

There is a specific process that we must follow in responding to petitions. About 90 days after a petition is received, we must decide whether the petitioner has provided substantial information to support the petition. If so, we then begin a more thorough status review of the species. On March 25, 1999 we decided that the information presented in National Wildlife Federation's petition was substantial enough to deserve further investigation. We then began to gather as much available information as possible on the species status. At completion of this status review, we will make a final decision whether or not listing of the black-tailed prairie dog is warranted.

Any one of three different decisions could be made at completion of the status review. We could decide that listing of the species was not warranted. With this decision, listing of the species would not occur given the information available today. If new information showed that the species' situation had worsened, we would reevaluate this decision.

We could also decide that listing of the species was warranted. In this case, we would immediately prepare a proposed rule to list the species, followed a year later with a final rule officially listing the species under the Endangered Species Act.

The third decision we could make is to say that listing of the species is warranted, but precluded. This would mean that we believe listing should occur but that we have other species in more dire situations that need protection of the Endangered Species Act first. This "warranted, but precluded" decision would be reevaluated annually. During these intervening years, significant conservation actions might be undertaken by federal and state agencies, tribes, and others to improve the species' situation enough such that listing would no longer be needed.

MONTANA: A STATE AG PERSPECTIVE

By
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Abstract: An overview concerning the petition to list the black-tailed prairie dog as a threatened species was presented. A draft of the Conservation Plan for Black-tailed and White-tailed Prairie Dogs in Montana was outlined. This plan was developed by the Montana Prairie Dog Working Group which is composed of federal, state and local agencies, conservation groups and private interests. The Plan was submitted to the USFWS as evidence that black-tailed prairie dogs are not considered to be threatened in Montana and that conservation of the species, associated species and effected habitat can be insured. The Plan consists of historic information concerning black-tailed prairie dogs in Montana and the objectives and strategies needed to insure long-term viability of prairie dogs and associated species and their habitats. Length and detail of the Plan prevent adding to the Conference minutes.

Note.-- *Copies of full report can be obtained by contacting* :

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EVIDENCE AND BELIEFS REGARDING PRAIRIE DOGS IN THE 19th AND 20th CENTURIES

By
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Abstract: An impetus to review the evidence for black-tailed prairie dog, *Cynomys ludovicianus,* species abundance during the pre-settlement period was caused by the recent petition to the U.S. Fish and Wildlife Service(USFWS) to list the species under the Endangered Species Act. But subsequent efforts to chronicle historical abundance of the species have brought little light to the subject.

This paper reviews diaries, journals and expanded records or government reports of party members on major Western U.S. frontier expeditions and includes anecdotal accounts of how the prairie dog colony and associated species were historically viewed.. The reviewed documents include the original journals of the Lewis and Clark expedition of 1804-1806, the 1806 Zebulon Pike expedition, the 1812 "Astorian" expedition, the 1820 Stephen Long expedition, the Nathaniel Wyeth 1834 expedition, Wm. M. Anderson's journals on the Sublette 1834 expedition, Father DeSmet's 1840 travels, the 1842 expedition of John C. Fremont, the 1843 Audubon/Bachmann travels up the Missouri River, the 1845 reconnaissance of the Southwest by Lt. James Wm. Abert, the G.K. Warren 1855-57 expedition. In my literature search, I targeted those expeditions who were, at least of a partial scientific nature or mission. The Pike, Long, Fremont, Warren, and Abert expeditions involved extensive travel across hydrology areas, defending the claim that most expeditions followed riparian paths hence negating prairie dog habitat.

For late 19th century post settlement records, I reviewed Oregon trail traveler testimonials, Maj. Merrill's 1876 account in *Forest and Stream*, . I also reviewed late 19th century Nebraska newspaper accounts E.T. Seton's 1953 book. For early 20th century records, I reviewed Nos. 25 and 49 of the USFWS *North American Fauna* series.

I conclude that scant or uneven evidence exists for vast populations of prairie dogs to have existed in the pre-settlement period. Conversely, early 19th century expeditions have found it noteworthy to report colony sizes as small as a few miles or even a few hundreds of yards. Evidence suggests that the species eastern range boundary has always been coincident with the mixed grass prairie ecosystem.

FACTORS IN PRAIRIE DOG MANAGEMENT

By
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Abstract: Black-tailed prairie dogs (*Cynomys ludovicianus*) were originally a widespread species in the central plains of North America, although we do not know how much of that range was actually occupied. They were associated with grasslands where bison and fire probably played important roles in maintaining sub-climax prairie vegetation. Prairie dogs also contributed to this vegetative state by their foraging and plant clipping habits, having dramatic influence on the composition and structure of vegetation. Prairie dogs are considered by many to be a "keystone" species with many other species associated with the colonies. Only black-footed ferrets, mountain plovers, and burrowing owls, however, appear to be obligate species. Prairie dog populations have endured many decades of persecution for real and perceived conflicts with humans. Conflicts include forage competition with livestock, damage from burrowing activities, crop damage, disease hazards, and encroachment into human settled areas. Prairie dogs pose severe challenges to resource managers in highly disturbed settings such as urban-suburban areas where there are many conflicting interests regarding the presence of prairie dogs. These rodents have a moderate-to-high reproductive potential and colonies can expand relatively rapidly, using many different vegetation types, including non-native species. There is a need for better monitoring of colonies and the changes that they undergo. Municipalities have designed management plans to reduce conflicts, using public input, zoned management areas, and a variety of management techniques and tools. Individual populations must often be managed very differently. Population and damage assessment, vegetation manipulation, barriers, relocation, biological control, fumigation, and periodic re-evaluations are all Integrated Pest Management (IPM) practices that are employed in the management of urban-suburban prairie dog populations. These techniques vary in their effectiveness, cost, and public acceptability. Managers are often restricted in the management options available to them because of budgetary, legal, and socio-political constraints. Contingency plans should allow for unpredictable events such as changes in attitudes and disease (plague) outbreaks. Future options for the management of prairie dogs in disturbed settings may be more restricted and more complicated by reintroductions of the endangered black-footed ferret (*Mustela nigripes*) and by the possible federal listing of the black-tailed prairie dog under the Endangered Species Act. Research is underway that may provide additional methods for management: repellents, barriers, and traps (and combinations thereof), reproductive inhibition, and an oral plague vaccine.

A HISTORY OF WILDLIFE DAMAGE MANAGEMENT

By
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Abstract: The issue of managing wildlife populations which impact people's property; health and safety; threaten their livelihood or profitability; or, in some situations, dealing with an individual animal creating problems is one that has been around since the beginning of man's early interactions with wildlife. In fact, there are numerous references to such interactions in the Bible as well as in many historical writings. During the colonial days through the early years of the 20th century, people in rural areas of this country either learned how to deal with the problems and did so with whatever tools, techniques, and ingenuity they could implement; changed the habitat which supported the problem animal; learned to accept the damage; or changed crops or management practices. Some individuals and communities today continue to follow this same decision-making process and manage problem species. However, with current local, state, and federal ordinances and regulations; increased urbanization; the problem of "landlessness" described by Leopold (1948) in " A Sand County Almanac"; and the impacts of the animal activist groups on the public sensitivity, an individual or community, in urban or rural areas, is limited in their use of tools, techniques and capabilities. The majority of individuals and communities today, and in the future, are much more likely to want someone else to deal with problem animals because they do not have the knowledge or skills to address the problem. In addition, they are not aware of regulations that apply; they have come to expect someone else to handle their problems either as a community service or for a fee; and they both care about the humane treatment of animals and are sensitive to animal activist group's claims. This paper is an effort to provide some highlights of a historical perspective on wildlife damage management from the beginning of federal agency concern in 1885 to the present.

USDA/APHIS PRODUCTS FOR THE NEW MILLENNIUM

By
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Abstract: USDA APHIS Wildlife Services is the premiere agency within the Federal Government for managing vertebrate caused damage to agricultural or commercial property or threats to human health. APHIS currently holds 18 Federal vertebrate pesticide registrations with the U.S. Environmental Protection Agency (EPA). Nearly all of the APHIS products are classified by the EPA as "Restricted Use" and are available only to trained Pesticide Applicator Certified USDA employees or Certified Applicators under their direct supervision. Eight active ingredients are registered as lethal toxicants for controlling birds, mammals and snakes. Zinc phosphide is available as pre-formulated oat and wheat baits and in concentrate form for onsite mixing to control a variety of rodent pests. All four APHIS strychnine products are limited to below ground applications for controlling pocket gophers. Strychnine products are available in pre-formulated oat and milo baits for hand-baiting or use in a burrow builder. The Gas Cartridge is available for use on burrowing rodents. Control agents for large predators include the large gas cartridge for coyotes, fox, and skunks, Compound 1080 for coyotes and wolves (only available in the "Livestock Protection Collar") and sodium cyanide (M-44) for coyotes, fox and wild dogs. USDA has one registered avicide, DRC-1339. It is available in five concentrate products for field formulation. The only pre-formulated DRC-1339 product, Starlicide Complete, was voluntarily canceled in 1998. Target species for DRC-1339 products include starlings, blackbirds and corvids. Most recently, APHIS obtained a quarantine emergency exemption for using acetaminophen as a toxicant to control the brown treesnake on Guam.

APHIS holds four Investigational New Animal Drug (INAD) authorizations with the U.S. Food and Drug Administration (FDA). Two of the INADs are for immunocontraceptive materials, gonadotropin releasing hormone, and porcine zona pallucida. Both have been proven to be effective contraceptive materials for white-tailed deer. However, they are only available as injectable vaccines. They are also being tested on coyotes and rats. The other FDA products are immobilizing agents. Alpha-chloralose in used to remove non-migratory waterfowl, pigeons and most recently black-crowned night herons from urban locations. Propiopromazine HCL is used in the "Tranquilizer Trap Device" for sedating captured coyotes, wolves, and dogs.

New products either under development or currently submitted for registration include the use of methiocarb as an aversive conditioning agent to reduce raven depredations on eggs of E&T species, two contraceptive materials for use on rodents and waterfowl, and repellents to protect electrical transmission cables from rodent damage and for protecting newly seeded rice.

CONTRACEPTION RESEARCH AND STATUS

By
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Abstract: A growing interest in nonlethal methods for population control of nuisance or damaging species of wildlife has fostered research in reducing fertility. Fertility may be reduced by interfering with the fertilization of the egg (contraception) or interfering with the implantation or development of the fertilized egg (contragestion). The National Wildlife Research Center (NWRC) is exploring several technologies to provide contraceptive agents for managing wildlife populations. Immunocontraceptive vaccines interfere with the biological activity of reproductive hormones (Gonadotrophin Releasing Hormone – GnRH vaccine) or block sperm-egg binding (Zona Pellucida–ZP vaccines). GnRH is a small peptide hormone secreted from the hypothalamus in the brain that controls the release of FSH and LH from the pituitary. By blocking release of FSH and LH, a GnRH vaccine prevents production of the reproductive hormones estrogen and testosterone, causing sterility in both sexes. The NWRC has conducted research with GnRH in rats, which remained sterile for over a year. In deer, GnRH vaccine reduced sexual activity in both sexes for one year without an additional boost vaccine. When administered over a 4-year period, GnRH caused an 88% reduction in fawns. GnRH-induced sterility was reversible and was related to antibody titer. The zona pellucida is a glycoprotein layer that surrounds the oocyte. Sperm must bind to and penetrate the ZP to allow fertilization of the oocyte. When deer were injected with ZP vaccine, they remained sterile for 1-3 years. Vaccinated female deer experienced multiple estrus but did not conceive. For immunocontraceptive vaccines to become practical for field use, they will have to be delivered orally. Research is being conducted with liposomes and other technologies to develop oral delivery systems.

The NWRC is also working with 3 compounds that are delivered orally. DiazaCon is a cholesterol mimic that can reduce seasonal hormone production by preventing conversion of cholesterol to reproductive hormones. When fed for 1 to 2 weeks, Diazacon can inhibit reproduction for up to 3 or 4 months, enough to prevent yearly reproduction in seasonal breeding wildlife. It is effective for both sexes and for both mammals and birds. Conjugated Linoleic Acid (CLA) is used in broiler chickens to prevent weight loss during infections. When fed to laying hens it increases the percent of saturated fatty acid in the egg yolk; if the fertilized egg is cooled at night the yolk becomes hard and the embryo does not develop. Nicarbazin is used for control of coccidiosis in broiler chickens. When fed to laying or breeding hens, it reduces egg hatchability by causing a breakdown of the membrane between the egg yolk and albumin. In FY2000, NWRC received $500,000 to conduct research on nicarbazin.

Development of fertility control techniques presents opportunities for wildlife managers to be receptive to the wishes of the public. Managers need to recognize that contraception will be most effective in wildlife that have a high reproductive rate and a short lifespan, such as rodents.

INVISINET – A NEW WILDLIFE EXCLUSION/CONTAINMENT MATERIAL

By
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Abstract: The Arizona-Sonora Desert Museum (ASDM) is located in the Sonoran Desert bordering the Saguaro National Park near Tucson, Arizona. The ASDM is a private, non-profit organization dedicated to fostering appreciation, knowledge and wise stewardship of the Sonoran Desert Region. The ASDM is the melding of a zoo, a botanical garden, and a natural history museum.

In an ongoing effort to provide the opportunity for museum visitors to view Sonoran Desert wildlife species in an environment that represents their natural habitat, a variety of animal containment materials and techniques were experimented with. This process led to the development of a steel wire netting material anchored and erected in a configuration that contains selected animals in a natural outdoor area in a manner that protects the safety of both human viewers and the contained animals. The resultant fine wire netting is unobtrusive and almost invisible in an outdoor environment. This netting material has been patented by the ASDM and is now marketed under the registered trade name, "Invisinet." Invisinet is a hand-tied, high tensile strength, stainless steel netting available in a variety of mesh sizes and tensile strengths, by license agreement, from Kettner & Associates, Mequon, Wisconsin. The ASDM receives a royalty payment from the sales proceeds of Invisinet.

At the ASDM the Invisinet is anchored at ground level to a rigid wire mesh which is imbedded in a below ground, concrete footing. The Invisinet is suspended from an overhead steel cable at various heights depending on the species being contained. The overhead cable is supported, at intervals, by support posts. In accordance with their objective to present wildlife in an environment that in both content and appearance represents their natural habitat, both the cable support posts are fabricated of metal to mimic the appearance of elements of the natural environment. For example support posts for the overhead cable are fabricated to very closely duplicate the appearance of dead trees, saguaro cacti, cholla cacti, ocotillo, yucca and various shrubs. Trenches for the concrete footing are hand dug to minimize the impact on the natural ground surface and plants and larger rocks are carefully set aside and replaced after the footing is in place.

In addition to the apparent efficacy of Invisinet as a wildlife containment material, it appears that this material has the potential to be used to exclude wildlife from designated areas as part of a wildlife damage management program. If the Invisinet is installed and configured as described above, this application may be especially suited for use in situations where other exclusion methods such as fencing or walls would be aesthetically unacceptable. Negative considerations of Invisinet to exclude wildlife in residential or agricultural applications would include the potential impact on non-target species. Because this material may be very difficult to see in some environments, there is a potential for the entanglement and possible injury of non-target wildlife, livestock, domestic pets, and humans.

EFFICACY OF THE AERIAL APPLICATION OF METHYL ANTHRANILATE IN REDUCING BLACKBIRD DAMAGE TO SWEET CORN, SUNFLOWERS AND CHERRIES

By
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Abstract: A number of birds species, both resident and migratory have been reported in the literature to cause significant depredation problems to sweet corn, sunflowers and cherries just prior to harvest. Over the years a number of management techniques, devices and chemicals have been developed and tested, all with limited success or with major constraints.

Field trials using methyl anthranilate, formulated as Bird Shield® repellent, was applied by aerial applicators at .474 L (1 pt) per acre on sweet corn, in Colorado, sunflowers in North Dakota and .474 L to 3.80 L (1 pt. to 1 gallon) per acre on cherries in Washington. The nine corn fields, ranging in size from 3.6 ha. to 10 ha. (9 to 25 acres) were treated twice, at five-day intervals, prior to harvest and compared with four untreated fields. The sunflowers, along with the cattail marshes where the birds were roosting adjacent to and in the center of the fields, were treated twice, at seven day intervals when the birds began to feed on the sunflowers. The cherries were treated once just as they began to ripen at 0.474, 0.95 and 1896 ml. (1, 2 and 4 qt.)/ac rates.

Three out of the four untreated corn fields were un-harvestable, with greater than 75% damage, because of the severe damage caused by the resident populations of red-wing blackbirds (*Agelaius phoeniceaus*) by the end of the study. Three of the treated field sustained no damage at all. The damage in the remainder was contained at pre-treatment levels (4% to 20%). The two applications of the repellent were sufficient to move the resident population of blackbird (Agelaius, spp.) out of the sunflower fields with no substantial damage to the crop. Untreated sunflowers sustained a mean damage of 78% to 90%. Treated sunflowers sustained between 2.6% to 3.4% damage. The difference in seed weights between untreated and treated plots was significant (P=0.01) with a mean weight of 0.018 g./cm^2 of seed per head within the former and 0.084 g./cm^2 of seed per head within the latter. Harvest weights ranged from 60 Kg (133 lbs.) to 318 Kg. (700 lbs.)/ac. (mean = 156 Kg.) in the untreated plots while weights ranged from 649 to 867 Kg. (1430 to 1909 lbs.)/ac. in the treated plots. No adverse effects were noted with fish or resident populations of ducks.

The application of the repellent by helicopter reduced bird damage from just under 13% in the untreated cherry orchard to between 0.08 and 1.0 % seven days later with 0.474, 0.95 and 1896 ml. (1, 2 and 4 qt.)/ac. rates. Greater differences were encountered when the repellent was applied at two additional sites. When 2 qt./ac. was applied bird damage was limited to 8% after 15 days when the untreated block sustained over 68%. When 4 qt./ac was used damage was limited to 4% while the untreated block sustained 58% damage.

SURVIVAL OF WILD, RELOCATED AND PEN-REARED RING-NECKED PHEASANTS IN CALIFORNIA AGRICULTURAL AREAS

By
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Abstract: Habitat use and survival of ring-necked pheasants (*Phasianus colchicus*) were studied using radio-telemetry in agricultural areas near Meridian and Nicolaus, CA. Habitats were categorized as: milo, rice, corn, alfalfa, melon, beans, sugar beets, safflower, sudan grass, weed fields, and fallow fields. The research was part of efforts to document potential non-target primary hazards posed by zinc phosphide (ZP) bait applications for vole (*Microtus* spp.) control in alfalfa. Following capture and radio-collaring: 4 wild, 36 wild and relocated (within 25 mi), and 31 pen-reared pheasants were released along farm roads near a minimum of 3 habitats with 1 being alfalfa. Birds were monitored twice daily using Global Positioning Satellites (GPS) information with ground triangulation to locate them. Approximately 4 - 6 weeks of radio-tracking during September and October 1996 showed no monitored pheasants were killed as a result of the zinc phosphide baiting. Of 20 wild pheasants and 17 pen-reared pheasants at the Meridian site, 10 lived, 19 died, and 8 radios failed during the study. The primary cause of death was avian and mammalian predation by wildlife (n=14, 74%); also, one pheasant was poached, one was killed by a cat, one by a dog, one was hit by harvest machinery, and another died of unknown causes. The majority of the predation attributed to wildlife occurred with pen-reared pheasants (n=8, 57%), while the remaining birds lost (n=6, 43%) were all relocated birds. At the Nicolaus site, 20 wild pheasants and 14 pen-reared pheasants were similarly monitored and their locations and deaths were recorded. All the deaths were attributed to wildlife predation (n=17, 100%) with 1 radio failure. The majority of the pen-reared pheasants were lost (n=10, 59%), less of the relocated pheasants died (n=7, 41%), and none of the wild pheasants were lost. All mortalities were found in habitats other than alfalfa and none had ZP in their gastrointestinal tract. Although the mortality of pen-reared pheasants was initially high, over time their survival increased, especially if they joined a wild flock. Relative frequencies of habitat utilization (as a percent of total locations) after the pheasants were acclimated to their radios and surroundings (days 1 -7) were similar among all 3 groups. Their locations appeared to be greatly affected by the grains providing both food and shelter prior to their harvest. The pooled data indicated the relative frequency (order) of habitat utilization by the pheasants at the Meridian site were: unharvested milo, > rice, corn and alfalfa harvested during the study, > undisturbed ditches, > harvested orchards, melons, beans, and fallow fields. At the Nicolaus site, the relative order of habitat utilization was: rice and corn (harvested during the study), > undisturbed ditches, > alfalfa , sugar beets and safflower (harvested during the study), > sudan grass, > harvested orchards and beans and fallow fields. This research was funded by the California Vertebrate Pest Control Research Advisory Committee; cooperators included: CDFA, California Department of Fish and Game, Sutter County Department of Agriculture and U.S. Environmental Protection Agency.

UPDATE ON RODENT IPM RESEARCH

By
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USDA/APHIS/WS National Wildlife Research Center
Fort Collins, CO

Abstract: The Integrated Pest Management Strategies for Rodent Damage to Agriculture Project at the National Wildlife Research Center has been pursuing various lines on research over the last year. The goal of the Project is to develop, test, and evaluate innovative and integrated methods and models to predict, monitor, and reduce rodent damage to agricultural crops and property. A major focus is the development of nonlethal approaches to reduce rodent damage, although some research continues on rodenticides, primarily to meet EPA data requirements for reregistrations. Using captive voles (*Microtus* spp.) in soil tanks at the Animal Research Building (ARB), we are testing the ability of candidate repellents to reduce apple consumption. Several compounds (quebracho, coyote urine, castor oil, capsaicin, thiram, plantskydd [blood meal]) show promise, but usually only at high concentrations. Many other compounds (e.g., almond oil, mint oil, garlic oil, fermented egg solids, methyl nonyl ketone, denatonium saccharide, denatonium benzoate, ammonium soaps and fatty acids) did not prevent treated apple consumption. Some physical barriers have been tested for their ability to reduce access to apples with varying results. Voles can typically get over or under the barriers. Combinations of barriers and repellents will be tested at a later date. Trials are also underway with rats (*Rattus* spp.) to determine if a combination of repellent and attractant can be used to increase the effectiveness of either alone. Such a combination might increase the acceptance of a bitter bait such as zinc phosphide. Endophytic grasses (containing a fungus that produces alkaloids) are being investigated as a possible way to keep rodent populations down. Field data from northeastern Oregon suggests that populations in infected fields have somewhat lower rodent numbers, although pocket gophers did not appear to be adversely affected. Capsaicin research continues with field trials to test the ability of this compound to reduce cable gnawing and soil digging by pocket gophers. Project personnel are providing a support role in field trials with various fertility control materials as well as in the rat eradication effort on Buck Island in the U.S. Virgin Islands. Other studies are seeking efficient, reliable population monitoring using track surveys. Frightening devices are still being investigated, although the results for reducing deer damage in crops have been poor. We plan to test some devices to see if prairie dog breeding can be disrupted. Personnel of The City of Fort Collins is using a variety of methods in an effort to stop prairie dog colony expansion into suburban areas; Project personnel are evaluating the success of those approaches. Project personnel are evaluating several computer programs designed to aid in rodent management and decision-making; programs exist for prairie dogs, pocket gophers, ground squirrels, mountain beaver, and house mice. One program ("the Mouser", developed in Australia) provides a useful tool for the prediction and management of house mouse outbreaks in Australia. It may have merit for dealing with the recent outbreak of house mice in Florida.

DISPERSAL OF FUMIGANTS THROUGH POCKET GOPHER BURROWS

By
Dale L. Nolte
USDA/APHIS/WS National Wildlife Research Center
Olympia, WA

Abstract: Reforestation efforts are often severely hindered on sites that contain high populations of pocket gophers. Strychnine baiting is a technique used to suppress pocket gopher populations until seedlings are established. An overview was provided on studies to assess possible non-target hazards following strychnine baiting to reduce pocket gopher populations conducted at the NWRC Olympia Field Station in cooperation with the United States Forest Service.

One study demonstrated that pocket gophers are likely to succumb to strychnine bait below-ground, either in their nest or in a burrow near their nest. Another study demonstrated that carcasses are not likely to persist for long (3 to 7 days) above-ground. A few carcasses were taken by vertebrates (e.g., ravens, weasels), but disappearance was due largely to insects. Insects were more active during periods of warm dry weather, thus carcass degradation was more rapid during these periods. Fumigants have not been considered as feasible alternatives to strychnine.

The NWRC Olympia Field Station also is collaborating with the US Forest Service Missoula Technological and Development Center to test a means to improve the efficacy of gas cartridges to reduce pocket gopher populations. A series of experiments were conducted to monitor the movement of carbon monoxide through an artificial burrow system and to assess the potential benefits of a blower system. Carbon monoxide was introduced to an artificial system by burning one gas cartridge or two cartridges either concurrently or consecutively. The blower was tried at different speeds for varied durations. The most effective fumigant dispersal occurred when the blower was used at a low speed only during the period while two cartridges were burned together. Field trials, however, failed to demonstrate increased efficacy to reduce pocket gopher populations using this method.

CAPSAICIN AS A MODEL SOIL REPELLENT FOR POCKET GOPHERS: PENETRATION, PERSISTENCE AND EFFECTIVENESS

By
Ray T. Sterner, Abbe D. Ames, Stephen A. Shumake, & Stanley E. Gaddis
USDA/APHIS/WS National Wildlife Research Center
Ft. Collins, CO

Abstract: Previous laboratory studies showed that exposure of northern pocket gophers (*Thomomys talpoides*) to soil containing ≥1.50% gravimetric capsaicin decreased their mean soil-contact time about 50% relative to control animals (26 min/h vs. 48 min/h). In 1999, we conducted: (1) a field study to evaluate this "soil-irritant" effect, (2) a field trial to assess the potential of a chisel plow to dispense capsicum into soil, and (3) a laboratory study to assess the persistence of capsaicin in soil.

The field study of soil irritants was conducted in an alfalfa (*Medicago sativa*) field near Wellington, Colorado. This field had a >5-year-old stand of alfalfa and mixed grasses, with center-pivot irrigation. Numerous mounds (~1 mound or plug per 5-8 m^2) of northern pocket gophers were present in the field. Radiotelemetry was used to determine the movements and surface locations nearest transmitted gophers. The design involved 6 experimental and 6 control gophers that were instrumented and monitored during baseline, chemical-insertion, and post-chemical insertion periods; plots (10.7-m^3) were centered on the most frequent site of telemetry locations. Open-hole indices, as well as fresh mound and feeding plug indices (monthly post study), were collected daily. Due to soil compaction, chemicals were applied in 128, 15-cm-dia., 46-cm-deep, evenly spaced holes that were dug using a gas-powered auger; 6 plots each were treated with 151-189 L of either 20% capsicum oleoresin in water or 20% soybean oil in water (control).

The field trial using chisel-plow equipment was conducted in an alfalfa field near Timnath, Colorado. This field had a >3-year-old stand of alfalfa and mixed grasses; a dense area of plains pocket gopher (*Geomys busarius*) activity (~1 mound or plug per 10-15 m^2) was evident near former oxbow features. During this trial, the movements and locations of 3 (experimental) and 1 (control) radio-collared gophers were monitored regularly during a baseline, chemical insertion, and post-chemical insertion period. Anhydrous ammonia was chisel-plow inserted into a 0.40-ha experimental plot having nests of 3 radio-collared gophers, while the chisel-plow was used to only dig the soil (control) on a 0.13-ha plot having 1 radio-collared gopher nest.

In the persistence study, 4 experimental and 1 water control tanks (194.25 $in.^2$ surface area) were mixed as 40%, 20%, 10%, 5%, or 0% capsicum oleoresin (wt:vol) with 8500 g of dried soil (i.e., 6.0, 3.0, 1.5, 0.75 and 0.00% wt:wt in soil). To simulate rainfall, 795.8 ml [1/4-in.] of water was poured evenly over each soil mixture every 24 h. A spectrophotometric analysis procedure was used to detect capsaicin for 28 days.

Analyses of data are pending. However, at the very least, this research confirmed that (1) improved soil-penetration methods are needed to insert liquid irritants into compacted soils typical of gopher habitat and (2) capsicum persisted for ≥28 days in soil, regardless of concentration.

STATUS OF ZINC PHOSPHIDE

Kathleen A. Fagerstone, John Eisemann, & Brett Petersen
USDA/APHIS/WS National Wildlife Research Center
Ft. Collins, CO

Abstract: The Reregistration Eligibility Decision (RED) was sent to zinc phosphide registrants from the EPA in late 1998. The RED required additional toxicity tests, efficacy trials, information to support tolerances, and submission of data from the American Association of Poison Control Centers. The following toxicity trials were completed and were submitted to the EPA on behalf of the Zinc Phosphide Consortium. Tests were conducted with the APHIS 2.0% Zinc Phosphide on Oats (EPA reg. No. 56228-14) with the following results:

GDLN	Test	Results
81-1	Acute Oral Toxicity	Toxicity Category III; LD_{50} = 2000 mg/kg
81-2	Acute Dermal Toxicity	Toxicity Category III; >2000 mg/kg
81-3	Acute Inhalation Toxicity	Toxicity Category II; LC_{50} = 0.46 mg/L
81-4	Primary Eye Irritation	Toxicity Category III; irritation clearing 48 hrs
81-5	Primary Dermal Irritation	Toxicity Category IV; slight irritation
81-6	Dermal Sensitization	Not a contact sensitizer

EPA requested additional data on storage stability for the grape, sugarcane and range grass tolerances; these data have been obtained from authors and submitted. Directions for use have also been submitted for sugarbeets and artichokes, to allow registrants to maintain those food uses on labels.

Laboratory and field efficacy studies were required by the EPA for roof rats, Norway rats, house mice, deer mice, ground squirrels, and prairie dogs. The National Wildlife Research Center compiled all literature available for these species and submitted over 200 reports to EPA. Waivers were requested for additional efficacy data based on 50 years of use of zinc phosphide. In addition, the Consortium funded a limited field trial with zinc phosphide to control deer mice.

The RED requested that zinc phosphide registrants submit 10 years of AAPCC data to the Agency. The Consortium purchased data from 1996, 1997, and 1998 and NWRC personnel are currently summarizing those data for submission to the EPA. The EPA recently decided that additional data would be purchased by the Agency rather than by registrants.

A series of stakeholder's meetings were held between March and October, 1999 to discuss ways to reduce the number of child exposures to zinc phosphide and the anticoagulant rodenticides (15,000 children had been referred to medical facilities because of potential exposure in and around the home, but very few children were harmed). The Working Group developed recommendations for approval by the EPA Pesticide Program Dialog Committee:
1) Dyes will not be required; 2) Bittering agents will not be required for zinc phosphide and will not be a universal requirement for anticoagulants; 3) Labeling will retain the current statement about use of bait stations, saying products will be kept out the reach of children or tamper-resistant bait stations will be required; 4) Outreach will be planned.

CHLOROPHACINONE AND DIPHACINONE: STANDARD ANTICOAGULANT LABORATORY TESTS ON RATS AND MICE

By
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USDA APHIS/WS National Wildlife Research Center
Fort Collins, CO

Abstract: The Vertebrate Pest Control Research Advisory Committee, through a cooperative agreement with the California Department of Food and Agriculture (CDFA), funded 10 laboratory studies at the National Wildlife Research Center (NWRC) from December 1996 to August 1999. The objective of the studies was to obtain efficacy data for controlling house mice (*Mus musculus*), deer mice (*Peromyscus sp*), and Norway rats (*Rattus norvegicus*) that would provide partial fulfillment of the requirements established by the Environmental Protection Agency (EPA) for the re-registration of the CDFA's bait labels. Mice and rats were placed on 15-day, 2-choice feeding and efficacy trials following the guidelines in EPA's Biological Testing Methods for Pesticides and Devices. Results of the 10 tests are reported.

0.01% chlorophacinone grain bait on white mice:
The total amount of the toxic bait consumed was 23.0% and mortality was 92.0%.
0.01% chlorophacinone grain bait on deer mice:
The total amount of the toxic bait consumed was 63.0% and mortality was 100.0%.
0.005% chlorophacinone grain bait on rats:
The total amount of the toxic bait consumed was 1.3% and mortality was 37.5%.
0.005% chlorophacinone wax bait on white mice:
The total amount of the toxic bait consumed was 11.1% and mortality was 71.7%.
0.005% chlorophacinone wax bait on rats:
The total amount of the toxic bait consumed was 1.7% and mortality was 80.0%.
0.01% diphacinone grain bait on white mice:
The total amount of the toxic bait consumed was 18.2% and mortality was 95.0%.
0.01% diphacinone grain bait on deer mice:
The total amount of the toxic bait consumed was 66.3% and mortality was 100.0%.
0.005% diphacinone grain bait on rats:
The total amount of the toxic bait consumed was 2.1% and mortality was 40.0%.
0.005% diphacinone wax bait on white mice:
The total amount of the toxic bait consumed was 8.2% and mortality was 66.7%.
0.005% diphacinone wax bait on rats:
The total amount of the toxic bait consumed was 0.8% and mortality was 57.5%.

In conclusion, the most effective control for house mice and deer mice are the chlorophacinone and diphacinone grain baits. For Norway rats, the chlorophacinone wax bait mortality reached the EPA acceptable standards. Even though the mortality rate for the female rats on diphacinone wax was 95%, the overall mortality did not reach the EPA standards for wax baits. Further testing with wax baits is recommended to increase efficacy.

SECONDARY AND NON-TARGET HAZARDS OF WARFARIN

By
John Baroch
Genesis laboratories, Inc.
Wellington, CO

Abstract: Warfarin is an old compound which revolutionized commensal rodent control when it became available in 1950. The long latent period between ingestion and the onset of toxic symptoms overcame the problem of bait shyness that plagued many of the acute poisons available at the time. Unfortunately, due to widespread use and perhaps overuse, some rodent populations developed genetic resistance to the compound by the 1960's. Newer, more potent anticoagulants, which shared the same mode of action with warfarin, but were effective against resistant rodents were developed and largely replaced warfarin. While effective against the target species, the newer anticoagulants also remain active in the target animal much longer and present increased secondary poisoning risks.

Recently, Genesis Labs began a program to evaluate the potential of warfarin to control field rodents while reducing the secondary risks. Two studies examined the potential risks to an avian scavenger (black-billed magpies) and to a mammalian predator model (domestic ferrets). Black-tailed prairie dogs were fed a 500 ppm bait (no choice) for 5-7 days. The carcasses were then fed to domestic ferrets (no-choice) for 5 days. The ferrets were observed for 21 days post -treatment and showed no signs of toxicosis. A similar study involved feeding warfarin bait to laboratory Norway rats for 5 days, then presenting the carcasses to black-billed magpies for 5 days, followed by 21 days of observations. Again, no signs of toxicosis were noted.

The results of these two studies accord well with work by other researchers which indicates birds and medium size or larger mustelids are not at risk of secondary poisoning by warfarin. Some studies indicate small mustelids (weasels) may be at risk due to their high metabolic rates. Laboratory studies only shed light on the potential risk of secondary poisoning, which may in fact be much less in the wild due to a variety of factors.

ALUMINUM PHOSPHIDE RED

By
Rex Baker
California State Polytechnic University
Pomona, CA.

Abstract: The Reregistration Eligibility Decision (RED) for aluminum phosphide as a control tool for burrowing rodents required some phosphine-monitoring trials to determine possible health hazards associated with use during applications. When applied according to the maximum allowable label rates for the control of pocket gophers, no phosphine was detected in all 12 raised foundation residences monitored. Out of 11 slab residences treated, phosphine could not be detected high enough to establish a 15-min Time Weighted Average (TWA) using Pac III Hygiene Data Loggers. However, EC Hybride equipped sensors indicated that maximum readings of 0.02 to 0.04 ppm phosphine had been detected in 4 buildings for a short period of time. Three of these buildings had also indicated 0.02 to 0.03 ppm phosphine in the 1-day pre-treatment period. These low readings are thought to have been from open toilet trap gasses whose odor became noticeable the day after treatment. The sites were located in unoccupied Air Force housing in heavily infested sandy loam soil. A more recent pilot trial in these same buildings using a new XS sensor showed no detectable gas level when compared with an EC sensor that indicated a level of 0.03 ppm. No phosphine gas was detected at a height of 3 ft. above treated turf and shrub areas by PAC IIIs at the 3 trial sites where the 0.02-0.03 ppm readings occurred.

THE FUTURE OF WILDLIFE DAMAGE CONFERENCES: RECENT DISCUSSIONS—AN UPDATE

By
Robert M. Timm, UC Hopland Research Center
Hopland, CA
&
James E. Miller, Program Leader-Fish and Wildlife, CSREES-NRE
Washington DC

Abstract: Recent difficulties in maintaining the three continuing conferences in the U.S. focused on wildlife damage management have been discussed at two gatherings: at the 6th Annual Conference of The Wildlife Society (Austin, TX, September 7-11, 1999) within the meeting of the Wildlife Damage Management Working Group; and at the 9th National Workshop of Cooperative Extension Wildlife, Fisheries, and Aquaculture Specialists (Portland, ME, September 29-October 2, 1999).

We provided a brief history of each of the three major conferences and describe some of the recent difficulties that organizers have encountered in attempting to hold these events on a regular basis. Additionally, we briefly recounted the consensus regarding the future of these conferences that has emerged from the recent discussions.

Note.-- See Supplementary Materials for additional information.

ANTICOAGULANT BAITING STRATEGIES FOR CALIFORNIA GROUND SQUIRRELS

By
Desley A. Whisson, Terrell P. Salmon, and W. Paul Gorenzel
University of California
Davis, CA

Abstract: The anticoagulants diphacinone and chlorophacinone (0.01% and 0.005% concentrations) are used extensively for control of California ground squirrels. With increased concern for potential secondary hazards associated with anticoagulant use, there is a need to develop baiting strategies that minimize the amount of bait applied, while still providing the desired control.

Since 1997, we have conducted laboratory and field studies to develop a "minimal baiting" strategy for control of California ground squirrels with anticoagulant baits. Initial tests have used 0.01% diphacinone bait. In laboratory tests, we determined that 2 bait applications with 3 or 4 days between applications are as effective as 3 applications at one day apart (label recommended rate).

We conducted field tests to compare the label-recommended rate and our minimal baiting rate using broadcast and spot-baiting application methods. We also tested the effect of diluting bait with clean grain (ratio 1:1). Preliminary results confirm our laboratory test findings. A high level of control was achieved on plots where squirrels received less bait (i.e. diluted applications) and with only 2 bait applications. Squirrel carcasses retrieved from the study plots will be analyzed for diphacinone residues to determine whether the minimal baiting strategy results in lower residues and , therefore, a lower potential for secondary hazards. We will continue the field testing in 1999, and determine the effectiveness of the minimal baiting strategy using the 0.005% concentration.

SUPPLEMENTARY MATERIALS

PROPOSED AGENDA

Tuesday, November 16

1:00-1:15 pm	**Convene; Welcome and Introductions:** Ray Sterner, NWRC, Ft. Collins, CO
1:15-1:30 pm	**Administrative Advisor Comments:** Grant Vest, USU, Logan, UT

Prairie Dog Forum

1:30-1:50	**The issue: selected videos/audios/background** R. Sterner, NWRC, Ft. Collins, CO
1:50-2:15	**Wildlife Federation Plan** Sterling Miller, NWF, Missoula, MT
2:15-2:40	**ES/TS process** T. Sexson, USFWS, Denver, CO
2:40-3:05	**Montana: A state ag perspective** M. Sullins, Montana Dept. Ag., Billings, MT
3:05-3:30	**Break**
3:30-3:50	**Evidence and beliefs regarding prairie dogs in the 19th and 20th Cent.** D. Virchow, UN, Lincoln, NE
3:50-4:10	**Factors in prairie dog management** G. Witmer, NWRC, Ft. Collins, CO
4:10-5:00	**Questions and Answers** (panel members & attendees)

Wednesday, November 17

8:30-10:30 am **WCC-95 Business Meeting.**

(I) Call to order
(ii) Acknowledgments and apologies
(iii) Approval of minutes from 1998 annual meeting
(iv) Old business
- Proposition 4 1998: benefit of review papers-R. Timm
- List Server-T. Salmon
- Brochure-R. Sterner
- Manuscripts/Reviews Coordination-R. Sterner
- 1998 Minutes-M. Sullins, Sec.
- WCC Petition Renewal-G. Vest

(v) New business
- Cooperation with Northeastern Group (P. Curtis, et al)
- Arrangements, facilities, and fees
- Next meeting dates
- Other matters, announcements, discussions

(ix) Election of officers
(x) Adjourn

10:30-11:00	**Break**
Presentations	
11:00-11:20	**A history of wildlife damage management** J. Miller, Cooperative State Research, Education and Extension Service (CSREES), Washington, DC
11:20-11:40	**USDA/APHIS products for the new millennium** J. Eisemann, NWRC. Ft. Collins, CO
11:40-12:00	**Contraception research and status** K. Fagerstone, NWRC, Ft. Collins, CO
12:00-1:00	**Lunch**
1:00-1:20	**Invisinet–a new wildlife exclusion/containment material** L. Sullivan, UA, Tucson, AZ
1:20-1:40	**Efficacy of the aerial application of methyl anthranilate in reducing blackbird damage to sweet corn, sunflowers, and cherries** L. Askham, Bird Shield Repellent Corp., Pullman, WA
1:40-2:00	**Survival of pen-reared pheasants in agricultural areas** B. Petersen, NWRC, Ft. Collins, CO
2:00-2:20	**Update on rodent IPM research** G. Witmer, NWRC, Ft. Collins, CO
2:20-2:40	**Break**
2:40-3:00	**Dispersal of fumigants through pocket gopher burrows** D. Nolte, NWRC, Ft. Collins, CO
3:00-3:20	**Capsaicin as a model soil repellent for pocket gophers: penetration, persistence and effectiveness** R. Sterner, NWRC, Ft. Collins, CO
3:20-3:40	**Status of zinc phosphide and anticoagulants** K. Fagerstone, NWRC , Ft. Collins, CO & N. Concos & G. Miller, CDFA, Sacramento, CA
3:40-4:00	**Chlorophacinone and diphacinone: standard anticoagulant tests on rats and mice** G. McCann, NWRC, Ft. Collins, CO
4:00-4:20	**Secondary and non-target hazards of warfarin** J. Baroch, Genesis Labs, Wellington, CO
4:20-4:40	**Aluminum phosphide RED** R. Baker, CA State Polytechnic University, Pomona, CA
4:40-5:00	**Questions and Answers/ Announcements**

Thursday, November 18

Presentations	
8:30-10:00 am	**The future of wildlife damage conferences** R. Timm, UC, Davis, CA & J. Miller, CSREES, Washington DC
10:00-10:30	**Break**
10:30-Noon	**Group discussions & research updates**

Note To Workshop Participants:
Given the limited time available for the panel discussion, this background information is provided as a means of making our discussion on this topic more productive. Your participation is welcomed!
Bob Timm, *session coordinator*

Concurrent Session B3: *Wildlife and Aquatic Nuisance and Damage Issues*
Saturday, October 2
12:30 – 2:00 P.M. Boothbay Room

Wildlife Damage Conferences: When, Where, and Why?

Historical Background
Three recurring conferences that focus on wildlife damage problems and solutions currently occur in North America: the Vertebrate Pest Conference, the Great Plains Wildlife Damage Control Workshop, and the Eastern Wildlife Damage Management Conference. In addition, the Annual Conference of the Wildlife Society includes sessions and individual papers dealing with wildlife damage issues.

Vertebrate Pest Conference (VPC): Originated in 1962, its purpose was to improve communication among those working in wildlife damage, as well as to provide a published Proceedings as an outlet for those who wished to publish in this field. Since the 4th Conference, it has been held every 2 years during the first week of March of even-numbered years. Traditionally, it has been held within California, however in March 2002 it will be in Reno, NV. It is the largest of the three conferences and most diverse in scope, with significant participation among attendees and speakers from throughout the U.S. and from a number of foreign countries. The Conference is organized and managed by a non-profit, incorporated Vertebrate Pest Council, comprised of approximately 30 members primarily representing California institutions and agencies. Since 1986, 1-day training workshops in wildlife damage techniques, formerly incorporated within the conference, have been held at 2 or 3 locations in March of odd-numbered years. For the past two cycles, these workshops have been sponsored jointly by the Pesticide Applicators Professional Association (PAPA), and in 1999 these workshops drew more than 1,200 attendees.

Great Plains Wildlife Damage Control Workshop ("Great Plains"): Founded in 1973, it was nominally sponsored by the Great Plains Agricultural Council until 1995, after which this Council (a consortium allied with Land Grant Universities in the ten Great Plains states) disbanded. From 1987 through 1997, it occurred in the spring of odd-numbered years. At its initiation it was largely an informal workshop for discussion and sharing of issues among Extension Specialists and invited state and federal agency personnel. Topics typically focused on issues of interest in the Great Plains region.

Eastern Wildlife Damage Management Conference ("Eastern"): From its inception in 1983 through the 8th Conference in 1997, it was held in the fall of odd-numbered years. Topics covered largely represent subject of interest in those states east of the Mississippi River. As with the Great Plains Workshop, its occurrence has been dependent upon the willingness of Extension Specialists or other associated professionals to organize and host the event, as well as to publish its *Proceedings*.

Annual Conference of The Wildlife Society ("TWS"): Since the first Conference in fall 1994, this annual meeting has included a significant number of papers related to wildlife damage. Some of these occur within sessions organized by the Society's Wildlife Damage Management Working Group. Only abstracts are published from this conference; however, the *Wildlife Society Bulletin* has demonstrated an increased willingness in recent years to publish papers on wildlife damage topics.

Data on attendance and number of papers presented at these four professional conferences are summarized on the attached table. In addition to these conferences, other more specialized meetings and symposia have occurred in recent years. For example, the 5th annual Wildlife Control Technology (WCT) Seminar was held in February 1999, focusing primarily on issues pertinent to the private nuisance wildlife control industry. In May 1999, the Bird Strike Committee USA held its 9th annual meeting (this time in conjunction with its Canadian counterpart), drawing an attendance of more than 300 persons focused on the specialized topic of bird-aircraft hazards.

Current Issues

In a number of ways, wildlife damage management has become a more visible and more accepted part of the wildlife profession. Further, considerable growth of private industry has occurred within the past decade to deal with the public's need for professional assistance with nuisance wildlife problems. Yet, those involved in the Great Plains and Eastern Conferences, in particular, have experienced increasing difficulty in organizing, funding, and hosting these events on a predictable and continuing basis. At the same time, persons wishing to attend and participate in such conferences often are limited by time and travel funds, and they must therefore choose among the various opportunities.

Representatives of the Berryman Institute at Utah State University have offered their assistance in co-planning and coordinating future wildlife damage conferences, and additionally have suggested the idea of starting a new peer-edited journal of wildlife damage management as a possible replacement for the *proceedings* from current conferences. The leadership of the TWS WDM Working Group is considering this group's possible future role in conference organization and sponsorship. At the recent Working Group meeting in Austin, TX, there was a consensus that besides the Annual TWS Conference, a Gt. Plains / Eastern WDM Conference held in the spring of odd-numbered years beginning in 2003 might be the best arrangement.

Topics for Discussion

- Is there a continued need for recurring wildlife damage conferences of similar format, meeting every 2-3 years, to focus on topics of regional interest (Gt. Plains, Eastern, Western)? If so, how can such conferences be self-sufficient without heavily relying on the financial and time resources of volunteer hosts / organizers?

- Do the *Proceedings* of the existing three conferences continue to serve a need? Are there efficiencies that can be realized by combining or restructuring such publications? Can a new peer-edited *Journal of Wildlife Damage Management* serve this purpose?

- Is there an increasing need for state or regional training workshops (providing continuing education / pesticide applicator credits) for wildlife professionals, both in the private and public sectors? If so, can such workshops be organized and conducted by the same leadership as the conferences?

- Within the expanding scope and magnitude of wildlife damage management, is there opportunity for creating new Extension Wildlife Specialist positions that could serve as resources for regional training and information needs? Would continuing education workshops held on a multi-state or regional level provide significant opportunities for funding such positions?

Wildlife Damage Conferences - Attendance & Participation Data

VPC				Gt. Plains			Eastern			TWS Annual Conf.		
year	*location*	*attend.*	*papers*	*location*	*attend.*	*papers*	*location*	*attend.*	*papers*	*location*	*attend.*	*papers**
1988	Monterey, CA	401	67									
1989				Fort Collins, CO	200	42	Madison, WI	162	43			
1990	Sacramento	359	80									
1991				Lincoln, NE	116	42	Ithaca, NY	156	50			
1992	Newport Beach	327	87									
1993				Kansas City, MO	200+	37	Asheville, NC	125	38			
1994	Santa Clara	318	63							Albuquerque, NM	1500	35
1995				Tulsa, OK	169	39	Jackson, MS	206	30	Portland, OR	2100	25
1996	Rohnert Park	340	56							Cincinnati, OH	1100	32
1997				Nebraska City, NE	129	36	Roanoke, VA	160	35	Snowmass Village, CO	1900	46
1998	Costa Mesa	409	77							Buffalo, NY	1100	38
1999										Austin, TX	1300	40
2000	San Diego		>75				St College, PA			Nashville, TN		
2001										Reno, NV		

*papers on wildlife damage topics only

NATIONAL WILDLIFE RESEARCH CENTER (NWRC)

NWRC WEB PAGE: www.aphis.usda.gov/ws/nwrc

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FAX 970-266-6040 (D.O.)

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6000 Dixon, Peggy

DIRECTOR'S OFFICE:
6036 Curnow, Dick
6036 Bruggers, Rick
6054 Miller, Charlotte VS 490-6010
6060 Dusenberry, Bill
6036 Yannutz, Mary
6037 Gonzales, Toni
6046 Howell, Jenni
6051 Patrick, Jayme

Administration:
6033 Mannos, Ann
6028 Brinegar, Sue
6027 Fuller, Joe
6056 Lorimer, Nicole
6030 Nelms, Jackie
6029 Penrod, Stewart
6026 Vacant
6031 Wolpert, Cyndi

6025 Mail Room
6117 Lunch Room

Library:

FAX 970-266-6010 (Library)

6015 Dwyer, Diana
6017 Noble, Aimee
6016 Paulik, Laurie
6018 Sutton, Morgan

QA Unit:
6007 Elias, Don
6022 Greiner, Laura

PPD: WS/VS
6061 Werge, Rob VS 490-6085

VS:
6140 Rhyan, Jack

CONFERENCE ROOMS:

6001	Longs Peak-A	
6002	Longs Peak-B	
6003	Longs Peak-C	
6008	Mt. Antero Room	205A
6044	Mt. Elbert-A	222
6045	Mt. Elbert-B	222
6070	Pikes Peak	239
6119	Mt. Evans-A	103A
6120	Mt. Evans-B	103B
6145	Mt. Princeton	120
6042	Buffalo Peaks	DO

Pocatello Supply Depot-Sherm Blom
208-236-6920 FAX 208-236-6922
Professional Travel-Fort Collins 013
(970)225-8680

BIRDS:

FAX: 970-266-6138

6135 Tobin, Mark
6132 vacant
6137 Clark, Larry
6131 Cummings, John
6130 Davis, James
6133 vacant
6123 vacant
6129 Pochop, Patty
6136 Sayre, Roger
6134 Wagner, Tammy
6121 York, Darryl
6122 Koebke, E.
6124 Dyer, K./Saylor, J.
6125 Coles, M./Kullas, H.
6128 Januszewski, M.

MAMMALS:

FAX 970-266-6089

6084 Fall, Michael*
6084 Alleman, Jean**
6085 Bishop, Abbey
6058 Groninger, Paige
6087 Gruver, Ken
6088 Shivik, John

PRODUCT DEVELOP:

FAX: 970-266-6157

6161 Fagerstone, Kathy*
6147 Ames, Abbe
6155 Bourassa, Jean
6149 Bowles, Walt
6164 Crane, Ken
6091 Engeman, Rick
6158 Eisemann, John
6162 Felix, Todd
6077 Fiedler, Lyn
6167 Gaddis, Stan
6160 Gibson, Dianne**
6151 Hollenbeck, Kelly
6079 Hygnstrom, Scott
6146 Linder, Tim
6150 Mathies, Tom
6142 Matschke, George
6141 McCann, Geri
6163 Miller, Lowell
6152 Offerman, Cord
6156 Petersen, Brett
6094 Pipas, Mike
6159 Plumley, Melissa
6144 Ramey, Craig
6154 Savarie, Peter
6148 Schafer, Ed
6168 Shumake, Steve
6078 Dr. Hakim
6170 Sterner, Ray
6143 Tope, Ken
6093 Vercauteren, Kurt
6095 Witmer, Gary
6153 Yoder, Christi

* Program Mgrs - ** Prog. Assts.

CHEMISTRY:

FAX 970-266-6063

6082 Johnston, John
6074 Furcolow, Carol
6080 Goldade, Dave
6071 Goodall, Marge
6081 Griffin, Doreen
6062 vacant
6067 Hurley, Jerry
6075 Jones, Holly
6069 Kimball, Bruce
6072 Kohler, Dennis
6068 Mauldin, Rick
6065 Primus, Tom
6083 Tope, Cherryl**
6052 Vietas, Jay
6066 Volz, Stephanie
6106 Wet Lab for Gas

Electronics:
6048 Johnson, Dick

Safety:
6169 Greiner, Steve

ANIMAL RESEARCH BLDG.

FAX 970-266-6203

6204 Dale, Al*
6209 Bird, Kirsten
6206 Bryner, Patti
6208 Lenzini, Dino
6210 Waychoff, Jim
6207 Wiliams, Patty

Warehouse
308 N. Link Lane
Fort Collins, CO
(970) 472-9090

Frequently called numbers:

Deputy Administrator		001
Acord, Bobby	(202) 720-2054	
FAX	(202) 690-0053	
Weekly Msg	(800)5941635	
OSS/APHIS	(301) 734-7921	
FAX	(301) 734-5157	
Employee Relations Specialist		
Brett Mourer	(813) 258-0322	
FAX	(813) 258-1406	
Sarah Tuck	(301) 734-5583	
Western Region		023
(303) 969-6560		
FAX (303) 969-6578		
Eastern Region		022
(615) 736-2007		
FAX (615) 736-2087		
LPA	(Legislative Public Affairs)	
McDonald, Stuart	(303)969-6565, x235	
FAX (303)969-6973		

VS (303)784-6262 x 222
Colorado Division of Wildlife:
(303) 297-1192
(970) 484-2836

NWRC Field Stations:

MAMMAL RES. PROG. 002
Berkeley, CA
Jaeger, Michael
510-643-5893
FAX 510-643-5098
Dye Creek
530-529-1409

Hilo, HI 005
Campbell, Earl/Kamigaki, Lillian
808-961-4482
FAX 808-961-4776
Sugihara, Rob/Medeiros, Rodney/Oberhofer/L.

Logan, UT 007
435-797-1348 Mason, Russ
435-797-2505 Keller, Dolores
435-797-2542 Gese, Eric
435-797-2508 Knowlton, Fred
FAX 435-797-0288 (Logan)
435-245-6091 Millville
FAX 435-245-3156 (Millville)
Zemlicka, Doris/Pitt, Will/King, Kip/Nielsen, Cody
DeLiberto, Tom/Seglund, Amy/Tegt, Jessica

Olympia, WA 008
360-956-3793 Nolte, Dale
360-956-3925 Byrne, Debbie
360-705-4565 Wagner, Kim
FAX: 360-534-9755

BIRD RESEARCH PROG. 003
Bismarck, ND
701-250-4467
Linz, George Ext. 3
Weisbeck, June Ext. 1
Homan, Jeff Ext. 2
FAX 701-250-4408

Gainesville, FL
352-375-2229 Avery, Mike 004
352-375-2230 Bohdanowicz, Dee
FAX 352-377-5559
Humphrey, John/Tillman, Eric A.

Tropical Aquaculture Lab
Quesinberry, Terry 813-671-5230
FAX 813-671-5234

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Dolbeer, Richard/Marshall, Betsy
419-625-0242/0098 011
FAX 419-625-8465
Blackwell, Bradley/Seamans, Thomas
Wright, Sandra/Bernhardt, Glen
Barras, Scott

Starkville, MS 012
Smith, Lana
Harrel, Brent/Floranelli, Paul
601-325-8215
FAX 601-325-8704
Glahn, Jim 601-325-8610
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