Newsletter of the Wildlife Disease Association





Members' Corner

New WDA Executive Manager *Ed Addison*

The Council of the Wildlife Disease Association is pleased to announce David Jessup as the incoming consulting executive manager of the Association. Dave will begin acting in this part time capacity within the next two to three months, following his retirement after almost 33 years of service with the California Department of Fish and Game.

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Dave received his BS from the University of Washington, Seattle, WA, USA (1971), a DVM from Washington State University, Pullman, WA, USA (1976)and a **MPVM** from the

Univer-





Dave working on a sea otter years!

sity of California, Davis, CA, USA (1984). In 1992, Dave became a diplomate of the American College of Zoological Medicine.

Dave has a long history of working in the field of wildlife health with the WDA and other organizations. Within the WDA, Dave has served as a council member-at-large (1982 -1985), vice president (1991-1993), president (1993-1995) and on many committees. Dave has attended

David Jessup, New WDA Executive Manager

most WDA conferences during the past three decades and has served as proceedings editor, local host or program organizer for five WDA conferences.

Our new executive manager has also been active in a number of other societies focused on wildlife health and conservation. He has served in a variety of capacities for the American Association of Wildlife Veterinarians including twice as president, on the editorial board and as an associate editor with the Journal of Zoo and Wildlife Medicine and on a number of committees of the American Veterinary Medical Association and The Wildlife Society. Welcome, Dave, we look forward to working with you for many

Journal of Wildlife Diseases Outgoing Assistant Editors

Ed Addison and Jim Mills

Assistant editors of the *Journal of Wildlife Diseases* are some of the hardest working people volunteering for us in the Wildlife Disease Association [WDA]. Assistant editors vary in their service from a few years to some who continue to work for more than a decade. This is an opportunity to acknowledge and thank five assistant editors who have chosen to 'retire' this year.

<u>Trent Bollinger 2005-2010:</u> Trent is regional director for the Western and Northern Region of the Canadian Cooperative Wildlife Health Centre. Trent is a veterinarian and is located at the Western College of Veterinary Medicine in Saskatoon, SK Canada.

Todd Cornish 2006-2010: Todd is a veterinary pathologist and associate professor at the University of Wyoming. Todd is centered at the Wyoming State Veterinary Laboratory. Todd completed a B.S. in Zoology (1990) and DVM (1994) at University of California, Davis, CA USA. He became a diplomate of the American College of Veterinary Pathologists (1998) and completed a PhD (1999) at the Southeastern Cooperative Wildlife Disease Study in the College of Veterinary Medicine, University of Georgia.

Kai Frölich 2005-2010: Kai resides in Belau, Germany and since 2007 has been director of the Center for Rare Domestic Breeds at the Tierpark Arche Warder, Warder, Germany. Prior to this position, Kai was head of research at the Institute for Zoo Biology and Wildlife Research in Berlin. Kai's educational background includes a BS from Christian Albrecht University in Kiel, Germany (1982); a MS from Ludwig Maximillian University in Munich, Germany (1985); and a PhD from Berlin Free University, Germany (2001). Kai received his Veterinary Surgeon Degree (1990); Doctor of Veterinary Medicine (1993); Habilitation (Dr. med. vet. habil.) in Veterinary Medicine (2001); and Privatdozent (2001) all from Berlin Free University.

<u>Dolores Gavier-Widén 2005-2010:</u> Dolores is one of our 'members of the world'. Dolores is Belgian and Argentinean in nationality. She was educated in Argentina (DVM, Buenos Aires University, 1982) and the United States (International Study Exchange, Lock Haven State College, Pennsylvania, 1979 and MS and PhD at University of California, Davis, CA 1986 and 1992) and has been associated professor

at the Swedish Agricultural University since 2005. Following postgraduate studies, Dolores has worked at both the National Veterinary Institute in Uppsala, Sweden and with the Veterinary Laboratory Agency in Weybridge, UK. Dolores is currently a veterinary pathologist at the NVI in Uppsala and is currently serving as vice president of the WDA.

Michael Yabsley 2004-2010: Michael is a parasitologist. He received a BS (1997) and MS (2000) from Clemson University, SC, USA and a PhD (2004) in veterinary parasitology from the University of Georgia, Athens, GA, USA. Michael is currently assistant professor of wildlife disease ecology in a split appointment between the Southeastern Cooperative Wildlife Disease Study and the Warnell School of Forestry and Natural Resources of The University of Georgia.

We thank these WDA members very much for their volunteer contributions in support of the mission of the Association. In future issues of the newsletter, we hope to profile other assistant editors of the *journal of Wildlife Diseases*.

New WDA Website Editor

Reneé Carleton has been selected by WDA Council as the incoming WDA website editor once our current website editor, Bridget Schuler, completes her term this summer. Reneé completed her DVM at the University of Florida, USA and her PhD at the Warnell School of Forestry and Natural Resources at the University of Georgia, USA. Reneé began working intermittently at Berry College, Mount



Reneé Carleton , New WDA Website Editor

Berry, Georgia in 2000 and joined the faculty as assistant professor in 2007. Reneé's research interests are in disease ecology, parasites and diseases of birds, and emerging infectious diseases of companion animals. She has co-authored papers with numerous people including long time WDA active members Ellis Greiner, Marilyn Spalding and Carter Atkinson and "blames" her conversion from practicing veterinarian to academic on Don Forrester, Marilyn Spalding, and Ellis Greiner. We are delighted the Reneé has volunteered to become our next website editor!

WDA Student News

University of Arizona WDA Update

Victoria Olsen-Mikitowicz

The newly established Student Chapter of the Wildlife Disease Association at the University of Arizona (WDA-UA) was developed to connect students with researchers, veterinarians, and professionals within the field of wildlife disease and conservation. We strive to expose students to relevant and emerging wildlife disease studies and get involved through field trips, speakers, and tours of facilities. Through our bi-monthly meetings, we organize field trips, collaborate on fundraising ideas, and interact with invited speakers. We work with researchers from agencies and organizations such as Arizona Game and Fish, the Veterinary Diagnostic Laboratory, and the Phoenix Zoo, as well as professors and researchers at the University of Arizona. Our club is closely linked with the Department of Veterinary Science at the U of A, and their support has instrumental. We look forward to the up-coming semesters and the opportunities they will bring to our new club.

Colorado State University Student Chapter

Jennifer Malmberg

A successful inaugural semester was followed with continued growth and development in the spring of 2010. Our seminar series began with Bill Lance of Wildlife Pharmaceuticals. Dr. Lance has been a leader in the advancement of wildlife anesthesia for over 20 years and has collaborated with organizations across the globe to develop new wildlife pharmaceuticals. His seminar focused on the history of wildlife field anesthesia and future developments in this rapidly changing field.

In March, Margaret Wild, Chief of the Wildlife Health Program for the National Park Service gave a seminar on the importance of the One Health concept, highlighting the interdisciplinary roles of the NPS Disease Outbreak Investigation Team and advocating cooperative efforts in disease research and management.

The chapter developed a student mentorship program to support the WDA's initiative to encourage student interest in careers in the field of wildlife disease. Our program pairs students and professionals with similar interests and provides students with opportunities to explore possible research and career paths. We have 16 students representing undergraduate, MS, PhD, and DVM programs and 26 mentors from numerous state and federal agencies, as well as CSU and neighboring

universities. The program is expected to grow, as the atmosphere at the kick-off event was full of contagious excitement and the potential for new opportunities.

This month, CSUWDA will host Alonso Aguirre, Director for Conservation Medicine at The Wildlife Trust. Dr. Aguirre is renowned for his international contributions to conservation medicine, and will speak about his research and the One Health approach. Additionally, the April business meeting will feature a brief overview of the wildlife-livestock disease interface in South Africa by Marna Sinclair.

The CSU WDA officers would like to thank the Wildlife Disease Association Executive Committee and the Associated Students of Colorado State University, as well as numerous CSU Departments and Colleges for their continued support. Please visit our website (www.csuwda.colostate.edu) for news and upcoming events.

WDA Students are some of our most active members. If you would like to initiate a student chapter at your institution please contact Terra Kelly our student representative on WDA council. (trkelly@ucdavis.edu)

Oregon State University WDA UpdateBrianna Beechler

This recently developed student chapter of the Wildlife Disease association includes graduate students, veterinary students, associated wildlife professionals and OSU faculty. OSU's chapter meets every other month and hosts speakers who are active in the wildlife field. Recent events include: Julia Burco who presented on aspergillosis in seabirds, Stephanie Gervasi who spoke on chytridiomycosis in amphibians, and a networking night held at a local restaurant. The mission of OSU's chapter is to provide educational and collaborative opportunities on current and emerging issues in wildlife disease for both graduate and veterinary students, bridging the gap between veterinary medicine and research. The chapter is affiliated with OSU College of Veterinary Medicine through faculty mentor Rob Bildfell. Visit our website for more information: http://wdaandzwe.volasite.com/

WDA Section News

Wildlife Disease Association - Nordic Section January—March 2010

Edited by Bjørnar Ytrehus (bjornar.ytrehus@vetinst.no)

Emaciated Wildlife Follows a Harsh Winter

<u>Erik Ågren</u>, (Erik.Agren@sva.se), National Veterinary Institute, Sweden

For the first time in many years, Sweden has had a long, cold and snowy winter. Roe deer (*Capreolus capreolus*) hunting season was closed prematurely due to deep snow cover and cold weather, making survival difficult as Sweden is at the northern habitat limit for this deer species. Reports from the field and wildlife carcass submissions in late winter has been dominated by emaciated roe deer and moose (*Alces alces*) as well as emaciated owls. European brown hares (*Lepus europeus*) have been found emaciated this winter.

Blue Urine

Erik Ågren

An interesting observation attributed to the harsh winter was submitted by photographs to the veterinary institute; a hare track in the snow, with droppings and bright blue colored snow from a urine stain! Infrequently observed or reported, the findings are connected with hares or other lagomorphs eating certain plants, e.g. buckthorn (*Rhamnus cathartica*). These plants are not normally browsed by hares due to toxic effects, so the observation is another sign of the lack of ordinary feed.

Wolf Hunting Resumed in Sweden *Erik Ågren*

Licensed hunting is part of the management of the Swedish large predator populations of brown bear (*Ursus arctos*), lynx (*Lynx lynx*) and wolves (*Canis lupus*). The first licensed wolf hunt in more than 40 years, started in early January 2010, for up to 27 wolves. The hunt decreased the number of wolves from the inbred Swedish/Norwegian population and increased habitat availability for future introductions with eastern immigrant or imported wolves. The National Veterinary Institute receives all dead large carnivores for necropsy and sampling, so the wolf hunt was a good opportunity to collect information on

health and diseases in the population. The only obvious malformation found on these 27 inbred wolves at necropsy was teeth anomalies in one animal. The most common lesions were of traumatic origin. Concerns about *Echinococcus granulosus* has been raised regarding wolf immigration from Russia and Finland, but all hunted wolves were negative for this parasite. Historically, *E. granulosus* has not been present in Sweden, except for extremely rare findings in semi-domesticated reindeer (*Rangifer tarandus*) or moose, but the parasite has become more prevalent in eastern Finland the past few decades.

High Mortality Among Whooper Swans in Southwestern Norway

Knut Madslien and Michaela Falk (knut.madslien@vetinst.no), National Veterinary Institute (NVI), Norway

In March 2010 high mortality among Whooper Swans (Cyanus cyanus) were observed in the Jæren Wetlands System in Southwestern Norway, an important stop-over and wintering region for waterbirds. Approximately 50 swans were found dead in a relatively small area and five out of these were submitted to the National Veterinary Institute regional laboratory in Sandnes for necropsy. The material included three adults (two females, one male) and two subadult males. The only consistent finding was severe emaciation. In one of the swans, the lower half of the oesophagus and the proventriculus were distended with large amounts of plant material mixed with grit. Toxicological analysis of the liver showed that this swan had a high concentration of lead in its liver (20µg/g). The other four swans had detectable, but not toxic, liver lead concentrations. However, no lead fragments were found in the gizzard of any of the birds. A moderate number of heart worms (Sarconema eurycerca) were visible subepicardially and within the myocardium in two of the birds. Microscopic examination revealed verminous cysts, fibrosis and aggregates of bacteria in the myocard. Also, moderate numbers of cestodes were found in the instestines of four of the birds. After a harsh winter, elevated mortality rates among wildlife due to emaciation should be expected. The winter of 2009/2010 was exceptional in both length and snow depth. Lack of available food and the increased energy costs associated with increased food searching activity and the harsh weather conditions during this winter may be the main cause of the emaciation and death of the swans, though increased parasitism and/or lead intoxication may constitute important contributing factors.



National Wildlife Health Center's Quarterly Wildlife Mortality Report

http://www.nwhc.usgs.gov

Mortality in Eurasian Collared Doves in Western States (Arizona, Montana)

Eurasian collared doves have expanded their range across most of the southern and western U.S. since their introduction into the Caribbean Islands and Florida in the 1970s and 1980s. During 2009, two mortality events involving Eurasian collared doves were reported to USGS-National Wildlife Health Center (NWHC). The first occurred in Arizona in October and the second occurred in Montana in December - both events occurred at backyard feeders. In each event, twenty to thirty doves were found dead over a period of several days. Carcasses were submitted to NWHC for examination. Laboratory testing revealed that the doves were infected with an avian paramyxovirus. Further testing at USDA-National Veterinary Services Laboratory in Ames, Iowa, identified the virus as pigeon paramyxovirus-1. Although this virus is in the same family of avian paramyxoviruses as Newcastle Disease, it is not considered to be a threat to poultry. Information was not available to determine if other avian species were involved in these disease outbreaks. Pigeon paramyxovirus has been observed previously in dove mortality events in Florida in 2001 and 2006. The 2009 events suggest a marked westward expansion of the disease. Surveillance for mortality events in Arizona and Montana were effective in identifying this new disease in free-ranging birds.

Avian Cholera in Geese and Ducks (Texas)

During December 2009, avian cholera mortalities were documented in Hartley and Moore Counties, Texas. The mortality events occurred at three locations, all within thirty miles of each other. Several duck and geese species were affected: mallards, American wigeons, Canada geese, snow geese, and Ross' geese. The final combined mortality from these sites was estimated to be close to 3,000 birds. Avian cholera occurred previously in two of these sites in the mid-1990s. Cholera outbreaks can oc-

cur at any time of the year, but seasonal patterns can often been seen in areas where the disease has

become established. In Texas, the majority of avian cholera outbreaks usually occur in the winter (approximately November through March).

Washington Seabird Mortality Event From Algal Surfactant (Washington)

A massive algal bloom of Akashiwo sanguinea, a dinoflagellate, off the coast of Washington during September and October of 2009, resulted in multiple seabird mortality events along the state's coastline. The first indication of affected birds was from Olympic National Park rangers seeing sick and dead surf and white -winged scoters. Carcasses were sent to USGS-National Wildlife Health Center (NWHC) and National Park Service for examination. Some birds had a suspect ring of greasy, matted feathers where they were in contact with water, and were emaciated. No pathogens were isolated. Examination of feathers by University of California-Santa Cruz identified a plumage fouling agent produced by the lysing of A. sanguinea cells that inhibits feather waterproofing. A similar stranding event was previously reported in Monterey Bay, California [Jessup et al. 2009. Mass stranding of marine birds caused by a surfactant-producing red tide. PLoS One 4(2)]. Two additional locations at Neah Bay and Long Beach, Wash., had simultaneous outbreaks in seabirds, including common murres, common loons, red-throated loons, northern fulmars, and western grebes. Multiple state and federal agencies, volunteers, university personnel, and rehabilitation facilities collaborated in this response effort. Final mortality estimates are not available at this time, but it is likely over 10,000 birds were affected.

Request for Wildlife Mortality and Morbidity Event Reporting (All States)

The USGS-National Wildlife Health Center Quarterly Wildlife Mortality Report, published in the Wildlife Disease Association's newsletter, is intended to inform wildlife professionals of wildlife events of interest. The authors kindly request that investigation reports of recent die-offs of mammals, birds, amphibians, and reptiles be submitted for inclusion in this report. Credit will be given to appropriate diagnostic laboratories. The

News from the Field

report can also be found online at http://www.nwhc.usgs.gov/mortality_events/ ongoing.jsp.

The Quarterly Mortality Report represents the most current information available to the USGS National Wildlife Health Center at the time of publication. We encourage researchers to contact us to acquire data directly. External request forms for mortality information can be obtained from Jennifer Bradsby at 608-270-2443 or email: jbradsby@usgs.gov.



Quarterly Wildlife Mortality Report October 2009 to December 2009

St	ate		Location	Dates	Spe	ecies	sMortality Diagnosis	Lab	osite	
AR	Lafayette County	12/22/09-12/25/09	Ross' Goose		100 ((e)	Aflatoxicosis	NW		
Greater Snow Goose										
ΑZ	Cochise County	08/28/09-09/02/09	Unidentified Grackle	е	15 ((e)	Trauma	NW		
			White-winged Dove							
AZ	Maricopa County	10/15/09-10/25/09	Eurasian Collared [Dove	35 ((e)	Viral Infection: pigeon A paramyxovirus 1	Z, NW, N	VL	
FL	Boca Raton	09/28/09-10/13/09	Muscovy Duck		90 ((e)	Botulism type C	NW		
MD	Baltimore	10/02/09-10/02/09	Green Frog		102		Fungal Infection: chytrid	SDC		
			American Toad							
MD	North Branch Stream	04/18/09-09/27/09	Eastern Box Turtle		10		Viral Infection: Ranavirus	NW		
	Valley Park									
MD	Poplar Island	09/20/09-10/04/09	Great Black-backe	d Gull	4		Aspergillosis	NW		
	Restoration Site		Herring Gull							
MN	Lake Winnibigoshish	10/09/09-11/25/09	Lesser Scaup		122 ((e)	Parasitism: Cyathocotyle	NW		
	and Bowstring Lake		American Coot				bushiensis, Sphaeridiotren			
							globulus, Leyogonimus po	•		
MN	Menahga	11/09/09-11/15/09	Canada Goose		8		Parasitism: Sphaeridiotren globulus	na NW		
MN	Upper Mississippi	09/18/09-11/24/09	Lesser Scaup	1,	,537 ((e)	Parasitism: Cyathocotyle	NW		
	NWR		American Coot				bushiensis, Sphaeridiotrer	na		
			Bufflehead				globulus, Leyogonimus po	lyoon		
			Blue-winged Teal							
			Unidentified Duck							
MT	Belgrade	12/06/09-01/20/10	Eurasian Collared [Dove	21 ((e)	Viral Infection: pigeon paramyxovirus 1	NW, N	1VL	
MT	Ravalli County	11/20/09-ongoing	Bighorn Sheep		60 ((e)	Pneumonia	MT		

News from the Field

MT	Georgetown Lake	10/15/09-11/09/09	American Coot White-winged Scoter	130 (e)	Parasitism: Cyathocotyle	9	NW
MT	Lake Elmo	10/17/09-10/20/09	<u>-</u>	8	Undetermined	NW	
NJ	Pequest WMA	08/01/09-10/25/09	House Sparrow	30 (e)	Salmonellosis	NW	
NV	Las Vegas	10/01/09-12/11/09	Eared Grebe Ruddy Duck Mallard American Coot	12	Trauma	NW	
TX	Hartley and Moore Counties	12/09/09-01/03/09	Wood Duck Mallard American Wigeon Ross' Goose Lesser Snow Goose	3,000 (e)	Avian cholera	NW	
TX	Colorado County		Black-bellied Tree Duck		Undetermined	NW	
UT	Syracuse	12/11/09-12/20/09	Green-winged Teal Mallard Gadwall	300 (e)	Undetermined	NW	
VA	Poquoson	10/15/09-10/20/09		8 (e)	Toxicosis: diazinon	NW	
WA	Blysma Flats and Wiser Lake	10/18/09-11/24/09	Northern Pintail Ruddy Duck American Wigeon Green-winged Teal Mallard	310 (e)	Aspergillosis	NW	
WA	Washington Coast	10/19/09-10/27/09		***	Loss of Waterproofing: Akashiwo sanguinea	NW	
WI	Outagamie County	10/23/09-12/04/09	Canada Goose Mallard	156	Impaction: soybean	WI	
<u>Upda</u>	ates:		ivialialU				
CA	Salton Sea NWR	06/04/09-09/09/09	American White Pelican California Brown Pelicar Canada Goose Ring-billed Gull	` '	Viral Infection: West Nile	NW	

(e) = estimate, *** Mortality estimate not available at this time, **** Cessation date not available at this time.

Suspect diagnosis = diagnosis is not finalized, but field signs and historic patterns indicate the disease.

University of Arizona Diagnostic Laboratory (AZ), Montana Fish, Wildlife and Parks Diagnostic Lab (MT), National Veterinary Services Laboratory (NVL), USGS National Wildlife Health Center (NW), San Diego County Veterinary Diagnostic Laboratory (SDC), Wisconsin Department of Natural Resources Wildlife Health Lab (WI).

Written and compiled by: Anne Ballmann - Eastern US, LeAnn White – Central US, Krysten Schuler - Western US, Jennifer Bradsby – Field Investigation Team Case Manager.

To report mortality or receive information about this report, please contact the USGS National Wildlife Health Center, 6006 Schroeder Road, Madison, WI 53711

Newsletter of the

News from the Field

Eastern United States

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The Quarterly Wildlife Mortality Report is available at http://www.nwhc.usgs.gov

To view new and ongoing wildlife mortality events nationwide visit http://www.nwhc.usgs.gov/mortality_events/ongoing.jsp

Species

Avian: American Coot (*Fulica americana*); American White Pelican (*Pelecanus erythrorhynchos*); American Wigeon (*Anas americana*); Black-bellied Tree Duck (*Dendrocygna autumnalis*); Blue-Winged Teal (*Anas discors*); Bufflehead (*Bucephala albeola*); California Brown Pelican (*Pelecanus occidentalis californicus*); Canada Goose (*Branta canadensis*); Common Loon (*Gavia immer*); Common Murre (*Uria aalge*); Eared Grebe (*Podiceps nigricollis*); Eurasian Collared Dove (*Streptopelia decaocto*); Gadwall (*Anas strepera*); Great Black-Backed Gull (*Larus marinus*); Greater Snow Goose (*Chen caerulescens atlanticus*); Green-winged Teal (*Anas crecca*); Herring Gull (*Larus argentatus*); House Sparrow (*Passer domesticus*); Lesser Snow Goose (*Chen caerulescens*); Mallard (*Anas platyrhynchos*); Lesser Scaup (*Aythya affinis*); Muscovy Duck (*Cairina moschata*); Northern Fulmar (*Fulmaris glacialis*); Northern Pintail (*Anas acuta*); Red-Throated Loon (*Gavia stellata*); Ring-billed Gull (*Larus delawarensis*; Ross' Goose (*Chen rossii*); Ruddy Duck (*Oxyura jamaicensis*); Western Grebe (*Aechmophorus occidentalis*); White-winged Dove (*Zenaida asiatica*); White-winged Scoter (*Melanitta fusca*); Wood Duck (*Aix sponsa*);

Mammalian: Bighorn Sheep (Ovis canadensis);

Amphibian: American Toad (Bufo americanus); Green Frog (Rana clamitans);

Training, Education, and Employment

Lindsay Wildlife Museum Opening

Director of Veterinary Services at the Lindsay Wildlife Museum in Walnut Creek, CA. Position is open until filled. Send cover letter, resume and three references to:

Executive Director, Lindsay Wildlife Museum, 1931 First Avenue,

Walnut Creek, CA 94597 or email: jobs@wildlife-museum.org. See Lindsay Wildlife Museum's website at http://www.wildlife-museum.org

For complete employment and training opportunity listings, please visit the WDA website at: http://www.wildlifedisease.org/opportunities.htm

Meetings and Conferences

WDA 2010 International Meeting 30 May—4 June, 2010 in Iguazú, Argentina

The first WDA meeting to be hosted in Latin America is right around the corner. We have received 240 abstracts, and as of March 31th, 171 participants have already registered. These numbers herald a great conference. The final program is now available. Registration is capped at 300 participants. If you haven't already registered and plan to attend please sign up at your earliest convenience. Visit the WDA conference website for registration forms and updates http://sites.google.com/site/wda2010argentina



Aerial view of Iguazu Falls: A UNESCO World Heritage Site, and one of the Seven Wonders of the World.

EWDA Conference, Vlieland, 13-16 Sept. 2010

The ninth EWDA conference will be held from 13 to 16 September 2010, on the Dutch island of Vlieland. For the latest information, look at http://www.ewda-2010.nl/



International Conference on Emerging Infectious Diseases

11-14 July 2010 at Hyatt Regency Atlanta, Atlanta, Georgia, USA

Please visit www.iceid.org for more information.



90th Meeting of the American Society of Mammalogists

11-15 June 2010 at the University of Wyoming, Laramie, WY, USA

Special symposium: Stable Isotopes in Mammal Research. Capstone speaker: John Hoogland speaking on 35 years of research on the ecology and social behaviors of prairie dogs. Visit www.mammalsociety.org for more information.

The newsletter of the WDA is published quarterly (January, April, July, October). Please contribute wildlife health and disease related articles, employment or training opportunities, or conference announcements to the editor at Jenny_Powers@nps.gov by the 1st of the month for publication on the 15th of the month.

Thank you!