

SUPPLEMENT TO THE JOURNAL OF WILDLIFE DISEASES

OCTOBER, 2000

Wildlife Diseases Newsletter
JWD Vol. 36: No. 4

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NEW ADDRESS!! Visit the WDA website at: <http://www.wildlifedisease.org>

President's Corner

Recently I was asked by a science writer to provide comment on several questions related to conservation medicine, a term coined in the last few years to describe an “emerging” discipline that links medical science, veterinary science, and conservation biology to the study of humans, animals, and the environment. For instance, I was asked how I would describe or define conservation medicine, and would I describe the work I do as conservation medicine? Is it useful to distinguish between conservation medicine and wildlife health, and what (if anything) is really new or different about this multidisciplinary, collaborative approach? Also, what are the most significant or promising aspects of this field, and is there potential in this approach to develop more effective means of protecting species and natural systems?

As I pondered these questions, I wondered how the scientists that founded the WDA 50 years ago (not to mention an even older organization, the Society for Tropical Medicine and Hygiene) would view the notion that the concept of an integrated, ecological approach to the study of wildlife health issues and zoonotic diseases is “new” to this decade. As declared in the original mission statement, the WDA was formed “in dedication to the conservation of wildlife through sharing the study and understanding of disease of wild animals”, with the objective “to advance knowledge of the effects of diseases and other [environmental] factors upon the health, survival, and populations of wild animals and their relationship to man.” These are goals that certainly encompass conservation medicine as currently defined. From the beginning, and even more so today, the WDA has embodied scientists from many different disciplines—including veterinary science, parasitology, microbiology, wildlife biology, pathology, toxicology, and public health—that share these common goals. If we define conservation medicine more broadly as the application of biomedical and ecological sciences to the conservation of animals, we are describing the work of most, if not all, WDA members. Even a cursory examination of the Journal of Wildlife Disease and the abstracts from the WDA’s annual meetings provides countless examples of pioneering research that required a multidisciplinary, collaborative approach, such as the development and use of oral vaccines to protect wildlife (and thus ultimately humans) from rabies, the role of wildlife in the transmission of Lyme Disease, the impact of brucellosis in elk and bison in Yellowstone, the decline of amphibians and the role of disease and other contributing environmental factors, to name just a few.

So if not exactly a new idea, is conservation medicine a useful concept, and if so, how will it promote the protection of wildlife? The most promising aspect in my opinion is that conservation medicine has attracted the attention of additional academicians in both medical and veterinary schools, and this new awareness may result in increased instruction of students (and perhaps the public at large) in the fundamentals of wildlife conservation, wildlife health issues, and the ecological basis of disease. In the long term, I am fairly optimistic that more education, increased communication, and perhaps a fresh perspective will benefit the conservation of wildlife and protection of natural systems, thus promoting the common

The Wildlife Disease Association does not regard the Supplement to the Journal of Wildlife Diseases (Wildlife Diseases Newsletter) as a citable publication and, therefore, it should not be referenced in the scientific literature.



FIGURE 1. Dr. Dave Jessup of the California Department of Fish and Game was this year's recipient of the WDA's Distinguished Service Award.

goals of conservation medicine (however it is defined) and the WDA. However, one concern very ably discussed elsewhere (see Osofsky, et al., *Conservation Biology* 14:336–337) is that issues related primarily to human health may ultimately dominate the discussion of conservation medicine and ecosystem health.

As a society of scientists dedicated to wildlife health and conservation, the WDA should certainly enter this discussion, welcome these new interactions and participants, and encourage colleagues interested in promoting conservation medicine to use the WDA and the JWD as a primary forum for communication. *Tonie Rocke, WDA President*

WDA ACTIVITIES

WY2K!!! The early June date of the 49th Annual Conference of the Wildlife Disease Association made it impossible to add photographs of meeting events to the summary that was posted in the July 2000 issue of the Supplement as it was sent to press prior to the conclusion of the meeting. However, as a result, some of this year's honorees are back for an encore!



FIGURE 2. Dr. Catherine Soos, University of Saskatchewan, receives the WDA Student Research Recognition Award from Dr. Ellis Greiner, Chairman of the Student Activities Committee. For his part in “annotating” Dr. Soos’ presentation during the Student Session of the conference, Dr. Greiner was later awarded the prestigious WDA Duck Award.



FIGURE 3. Dr. Lauren Ritchie of the University of Florida receives the Terry Admundsen Presentation Award from Dr. Greiner. The Student Research Award went to Dr. Mark Cunningham, also of the University of Florida (sorry, no photo available).

South Africa!!! The Wildlife Disease Association (WDA) and the Society for Tropical Veterinary Medicine (STVM) will hold a joint meeting with the theme “Wildlife and Livestock Disease and Sustainability: What Makes Sense?” from July 22–27, 2001 at Kwa Maritane, Pilansberg National Park, South Africa. The meeting will be the WDA’s 50th annual and 8th international conference, and the 6th biennial conference of the STVM. The venue will allow plenty of opportunity for world class game viewing, social events and local entertainment, African folk art and craft shopping, and extension tours and safaris within southern Africa.

Themes of the Conference are emerging diseases, disease scourges of wildlife and livestock, new tools, technologies and vaccine development, sustainability of current management practices, what makes sense for future wildlife and livestock health management?, immunological and epidemiological approaches to disease mechanisms, vectors—role and control, holistic approaches for people, animals, and the environment and pathogen pollution.

The conference will be comprised of plenary sessions, breakaway sessions, and poster sessions. Participants are invited to submit papers and posters for the sessions. While topics in line with the conference theme will be given first consideration, papers and posters covering areas outside the general theme will also be considered. **The deadline for the Call for Papers is December 15, 2000.** The early registration deadline will be February 1, 2001, and the hotel registration deadline is June 1, 2001. The standard registration deadline for conference is July 10, 2001.

Conference information, travel information, registration and the call for papers will be handled by Event Dynamics, P.O. Box 411177, Craighall 2024, South Africa. Telephone: 27 11 442 611; FAX: 27 11 442 5927. Email: sandra@eventdynamcis.co.za

WDA Student Activities. The Wildlife Disease Association offers a scholarship and two awards to encourage student participation in the Association and our annual conference, and to recognize outstanding student research. Students are defined as undergraduate or graduate students in the basic or veterinary sciences, and veterinary interns or residents. Potential recipients must be members of the Wildlife Disease Association or must apply for membership at the time of application for the award. Student supervisors are encouraged to bring these awards to the attention of their students well in advance of deadlines.

1) **Wildlife Disease Association Scholarship: Deadline: April 15, 2001.** This scholarship acknowledges outstanding academic and research accomplishment, commitment, and potential in pursuit of new knowledge in wildlife disease or health. The scholarship has a value of \$2,000 US and is awarded annually to an outstanding student who is pursuing a master’s or doctoral degree specializing in research on wildlife disease.

To be considered, the candidate must have completed a four-year baccalaureate degree. Candidates with an overall grade point average above 3.5 in 4.0 system, 80% or better in percentage system will receive priority. The candidate should be committed to leadership, scholarship, and service in the wildlife health profession. Interested applicants should submit the following items:

- One copy of all relevant transcripts. Transcripts can be official (i.e. with the imprint of the official seal of the institution and the signature of the responsible university officer) or copies signed by the student’s faculty advisor;
- Up to 3 letters of support, including a letter from the student’s faculty advisor, that address the following specific abilities of the applicant: academic achievement, scholarly promise, research ability, verbal and writing skills, industriousness, leadership abilities, judgment and potential for contribution to the field of wildlife diseases;
- Evidence of superior scholastic achievement (course work, scholarships, awards, publications);
- A summary of the research being conducted and progress to date. This summary should, at minimum, include the hypotheses being tested and proposed methods to answer the question. The summary should not exceed 10 pages double-spaced typeface font 10 or larger (excluding references, figures, and tables).

Grounds for disqualification include:

- Items missing.
- Summary exceeds 10 pages (excluding tables, figures, and references).
- Submissions postmarked beyond deadline date.

2) **Student Research Recognition Award Deadline: April 15, 2001.** This award is given to the student judged to have the best research project in the field of wildlife disease, based on written communication and scientific achievement. This year, since the conference is in South Africa, the winner will receive a plaque and up to \$2,000 US to cover travel, housing, registration, etc. related to the annual conference. The student will be the featured presented during the Student Presentation Session at the conference.

Applicants should submit three items:

- A summary of their research (10 pages, double-spaced, type face font 10 or larger) structured as follows: title, abstract, introduction, methods, results, discussion, references, table, and figures. The title page should be separate, and the 10-page limit applies only to the title page, abstract, introduction, methods, results, and discussion.
- A cover letter stating how the research relates to WDA objectives (see inside the back cover of the *Journal of Wildlife Diseases*).
- A letter of support from the faculty advisor indicating the degree of student involvement in the planning and execution of the research project.

Selection criteria: Each item (1–3) will receive a score and the sum of these scores will determine the rank of the candidate.

Grounds for disqualification include:

- Items missing.
- Summary exceeds 10 pages (excluding tables, figures, and references).
- Submissions postmarked beyond deadline date.

These awards are non-renewable and can be received only once by a given candidate. Questions should be directed to Dr. Thierry Work at the address listed below.

- 3) **Terry Amundsen Student Presentation Award: Abstract Deadline: December 15, 2000.** This award recognizes the best student paper presented at the Annual Conference. The award is based on the scientific content of the research and the quality of the presentation. The winner receives a plaque and \$250. In addition, up to three students receive Honorable Mention, which includes a plaque and a smaller monetary award. Students wishing to be considered for the award in 2001 should plan now to attend the meeting in South Africa and present a paper. Watch for the Call for Papers, and submit an abstract both to the Program Chairman (with a notation that it is a student paper) and to Dr. Work at the address below.

For more information regarding any of these awards or other student information, please contact Dr. Thierry Work, USGS-Biological Resources Division, National Wildlife Health Center, P.O. Box 50167, Honolulu, HI 96850 USA. Telephone: (808) 541-3445; FAX: (808) 541-3472. Email: Thierry_Work@usgs.gov

Change of Editor for the Journal of Wildlife Diseases! Starting September 1, 2000, transition of the editorship will have started and I will have begun receiving manuscripts submitted to the *Journal of Wildlife Diseases*. Dr. Danny Pence and I will jointly serve as editors until January 1, 2001, so that evaluation of manuscripts currently under review can be completed under Dr. Pence's direction. During the coming year, management of the *Journal* will follow established procedures with a few changes. The most obvious change will be a new cover for the *Journal*, as approved by the Editorial Board and the WDA Council. The cover is being redesigned and will sport a black-and-white photograph/photomicrograph chosen from figures published in the issue or that reflect the issue's content. Authors are requested to consider the need for cover material when submitting their manuscripts to the *Journal*. I will be investigating various options related to different levels of electronic publishing, but the only change to be made immediately will be the need to submit final drafts of manuscripts on diskettes. Instructions for authors and other documents related to the *Journal* are published in the January issue of the *Journal* and at www.wildlifedisease.org

I am looking forward to serving the *Journal* and wildlife disease scientists over the coming years. The *Journal* is excellent, in great part due to the hard work of Editor Pence and his able editorial assistant Cindy Pence. We all owe them thanks for many years of dedication and hard work.

The new address and contact information for the *Journal* is:

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Changes at the WDA Web Site!! The WDA web site (www.wildlifedisease.org) is currently evolving to reflect changes made by the WDA Council at the 2000 Conference in Jackson Hole. These changes include password protection of items deemed "member benefits" such as the quarterly *JWD Supplement*. Previous *Supplements* that are already posted will remain public access, but *Supplements* from January 2001 onward will require password access. A new logo for WDA was voted on in June and will be featured on the web site soon. A page of wildlife health-related links is now available as well. Please check the site often for new features and updates! *Jill Chambers Lang, Webmaster.*

News from the Membership Committee

New “Adopt a Member” Program. At the Council meeting in Jackson this year, a new “Adopt a Member” officers and members unanimously approved program. This program, to start in 2001, will make it possible for you as a WDA member to sponsor a new or continuing member in the WDA by simply checking the “Adopt A Member” box on your remittance envelope, specifying the name and address of your sponsoree, and including payment for his/her membership in addition to yours. Sponsored members will receive all the benefits of regular membership. Please take advantage of this easy way to assist our colleagues in developing countries—for whom membership dues are often prohibitively expensive—with active participation in our organization.

New Membership Category: Associate Member. Also at the Council meeting in Jackson, a new membership category was created, called Associate Member. For \$21 in annual dues, associate members will receive the password for access to the members-only section of the WDA website, which contains the full text of the *JWD Supplement*, titles of papers published in each issue of the *Journal of Wildlife Diseases* and titles and abstracts from WDA Annual Conference Proceedings. Associate members will not receive hard copies of the *Journal* or *Supplement*. Once again, the hope is that this new, substantially less expensive membership category will encourage our overseas colleagues to join the Wildlife Disease Association.

Membership Directory 2000–2001. We will be producing a 2000–2001 Membership Directory this year, so please be sure to keep Allen Press apprised of your current contact information.

Nominations for WDA Offices, 2001. The Nominations Committee is requesting nominations from the WDA membership for the offices of: President, Vice-President, and two (2) council members-at-large. Each nomination should be made in writing by three WDA members. Please submit nominations to Todd O’Hara, North Slope Borough, Dept. of Wildlife Management, Box 412, Barrow Alaska, 99723, USA. Email: tohara@co.north-slope.ak.us Please submit nominations by November 30, 2000.

HAPPENINGS IN THE FIELD

“How’s the Weather?” We often hear this question in conversation. If you think about it, “how’s the weather” isn’t really a mundane question; the weather is fascinating. We know that the weather affects flora and fauna everywhere, and it can even affect our state of mind. Interestingly, many seem to consider the weather a constant in their lives even though we know it changes. How often have you heard, “Boy it sure isn’t as cold as it was when I was a kid”? The weather—or better stated, the climate—may be changing. Global warming has become a routine part of our vocabulary and national consciousness. Recently, there was a news report (New York Times August 19, 2000) of open water at the North Pole. This is astonishing! Apparently, this has never happened in human history; scientists estimate that the last time there was open water at the North Pole was likely about 55 million years ago. Combine this with the seemingly anomalous weather patterns of the past several years and there may be the beginnings of some dramatic changes in our future. If global warming is the coming trend, then it may be useful to consider some of the consequences of this change.

Consider this summer alone in the United States. There is an extended drought and associated fires ravaging the western states, an unusually cool and wet summer in the Midwest, a drought in the southeast, and excessive rain in the northeast. Abnormal weather changes alter habitat even over the short term. Many animal species, for example, are vulnerable to habitat conditions especially during the summer when newborns have a limited time to prepare for winter. Some changes can have cataclysmic effects on a species population that requires years to recover.

But the plot thickens. Climatic change can be beneficial and detrimental at the same time. For example, abnormal wet conditions can provide opportunities for arthropod vectors to flourish, and it can reduce forage for grazers. The water also provides extra breeding opportunities for amphibians and fishes, which means more food for wetland birds. Disease will play a role in either case. As more animals congregate to take advantage of the water, they are also more vulnerable to rapid and widespread disease transmission. Grazers deprived of sufficient forage are less able to achieve reproductive success, and may become more vulnerable to disease because of poor nutrition. Animal populations adjust to “normal” annual cycles of weather. However, when the cycle changes appreciably, animals suffer and diseases can flourish.

Scientists have developed extraordinary capabilities to monitor and predict weather. Computer-enhanced satellite imagery can depict the weather almost as it happens. There is an enormous amount of regional and global historical information available about the weather. We have also accumulated a large collection of information about disease trends. The time seems right to incorporate these two types of data sets. Geographic Information System (GIS) technology seems best suited to perform this task. As far as I am aware, the Florida Marine Research Institute was among the first to use GIS as an integral part of the investigation of an epizootic. GIS allowed investigators to visualize tides, currents, wind

direction and speed, water temperature, salinity, presence and movement of red tides, and manatee carcass locations, all in motion! The epizootic literally unfolded on the computer screen. The opportunity exists to expand this capability to a much greater scale. By thinking of the weather as a primary force of habitat change, we may be able to anticipate disease outbreaks in wildlife or zoonoses and initiate management strategies to avoid catastrophe. In the meantime, I'll keep asking my friends in faraway places, "How's the weather?" *Scott D. Wright, Florida Marine Research Institute, scott.wright@fwc.state.fl.us*

Whale Mortality—Possible Link to Sonar Tests?? Necropsies of beached whales in the Bahamas suggest a possible link between Navy sonar tests and ear hemorrhages disorienting the animals, according to a biologist hired by the National Marine Fisheries Service said Wednesday. Darlene Ketten, an expert on whale acoustics, said "the coincidence of the timing and the pattern of the stranding with the presence of Navy sonars . . . raises a red flag and I think there's reason for concern." But she warned: "I'm still not ready to say the Navy did that." Ketten, a marine biologist at Harvard Medical School and the Woods Hole Oceanographic Institution in Massachusetts, spoke in a telephone news conference in which the Fisheries Service released initial findings. Having previously questioned alleged links between whale deaths and anti-submarine sonar tests, the Navy said Wednesday there was "a priority need" to examine the issue. It said it had created a group of experts to help.

At least 16 whales of 4 different species beached themselves on the islands of Abaco, Grand Bahamas, and North Eleuthera on March 15 and 16, 2000. Seven died, including 4 Cuvier beaked whales and a Blainville's dense beaked whale. The others were pushed back into the sea.

"We hope to build upon what we will learn . . . to ensure it does not happen again anywhere in the world," Comdr. Greg Smith, a Navy spokesman from the Pentagon, told [news reporters]. Scientists' efforts to link whale beachings to sonar have been frustrated because corpses were too decomposed to provide conclusive evidence. They included the 1996 beachings of 12 Cuvier beaked whales in the Ionian Sea during NATO anti-submarine exercises. But in March, some of the 16 whales beached in front of the Abaco home of marine biologist Ken Balcomb, research director of the Washington-based Center for Whale Research. Balcomb's swift action preserved the corpses.

The whales suffered minor to severe hemorrhages in or around the ears, possibly caused by "a distant explosion or an intense acoustic event," said the Fisheries Service, a Commerce Department agency concerned with the conservation and management of living marine resources. Roger Gentry, coordinator of the service's acoustics team, said investigators hadn't ruled out that underwater landslides could emit up to 230 decibels of sound. Ketten said she might have more conclusive evidence once the Navy provides a detailed map of its activities, expected in July, and she completes the necropsy studies, which could take 10 months.

Navy spokesman Smith said the U.S. ships were transmitting signals from hull-mounted sonars reaching around 235 decibels. "This is the same sonar we have used for decades, on some U.S. Navy ships and many navies' warships are transmitting somewhere in the world every day," he said. The Navy promised to devote more money to researching beaked whales, mysterious mammals inhabiting deep waters. The Cuvier species is believed to be the deepest-diving mammal, reaching depths of 6000 feet.

Critics want to stop Navy development of a new sonar, called Low Frequency Active sonar, transmitting pulses so loud they can match the roar of a rocket launch. The Navy says it needs the system to detect "quiet, diesel-electric submarines operated by unfriendly nations and competitors." *Nando Times June 15, 2000 & Associated Press June 14, 2000 [edited by ProMed]*

New AVMA Euthanasia Panel. For many years, the American Veterinary Medical Association (AVMA) has published guidelines for animal euthanasia that are derived from deliberations of specially appointed AVMA panels. The latest published Report of an AVMA Panel on Euthanasia was in 1993. A new Panel was convened recently, and a revised Report is forthcoming. Wildlife management officials and wildlife researchers have been concerned with the AVMA's stated policies on euthanasia because they are becoming increasingly directed toward captive and free-ranging wildlife. This trend is likely to result in greater pressure for the euthanasia guidelines to be made "the standard" for killing free-ranging wildlife during field research collection activities, dispatch of nuisance or injured wildlife Or eventually, trapping and hunting.

Although wildlife managers hold to the ethic of quick and merciful killing of wildlife, there are many circumstances where the term "euthanasia" simply does not apply when dealing with free-ranging wildlife. Euthanasia has been generally defined by the AVMA as "*the act of inducing humane death in an animal.*" From a wildlife management perspective, this definition is not enough because it does not acknowledge that euthanasia can only be conducted under special circumstances. In order to provide euthanasia, one must have *control over the animal and the means to conduct the act of euthanasia* (equipment, drugs, training, etc.). There is a fundamental difference in difficulty between killing a confined domestic animal as opposed to a free-ranging animal. Also, there is a huge logistical gap in the availability of federally controlled euthanasia drugs and/or specialized equipment between veterinarians in clinical settings versus nuisance wildlife control operators or wildlife agency personnel in the field. Several wildlife management oriented groups, including the American Association of Wildlife Veterinarians and the International Association of Fish and Wildlife Agencies, recently have had an opportunity to comment to the AVMA

Panel and plead a case for qualifiers on their concept of euthanasia. Hopefully, changes can be made that will circumvent unrealistic pressures on wildlife managers that euthanasia guidelines potentially could create. *Vic Nettles; SCWDS Briefs 16(2), July 2000.*

New Ecology Mailing List! A new email mailing list has been created for the discussion of the ecology of disease in natural populations. This mailing list is a bit of an experiment; however, if successful, it could provide an excellent opportunity for the discussion of ideas, statistical techniques, published literature, software, websites, etc. related to the ecology of disease in natural populations. Subscribe by visiting: <http://skyway.usask.ca/~joly/disease.html> *Damien Joly, University of Saskatchewan, Saskatoon, SK, Canada.*

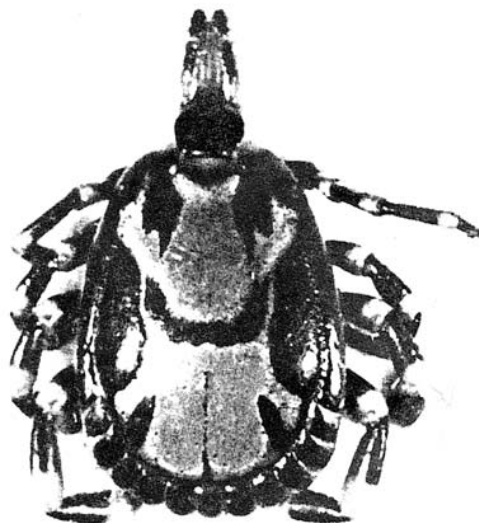


FIGURE 4. Photograph of Tick A.

DIAGNOSTIC RIDDLE

What is your diagnosis?

You find this “creature” on an animal in south Florida. . . should you be concerned?

NATIONAL WILDLIFE HEALTH CENTER'S QUARTERLY MORTALITY REPORT

Amphibian die-offs that occurred this spring in Maine, Minnesota, North Carolina, Massachusetts, and Tennessee have been attributed to iridovirus infection. Affected species included spring peepers, wood, bull, and mink frogs and spotted salamanders. Iridovirus was previously documented as the cause of amphibian mortalities in Arizona (1996), Canada (1997), Utah and North Dakota (1998) and Idaho and Wyoming (1999). In addition, chytrid fungus has been implicated as the likely cause of boreal toad mortality in Colorado's Rocky Mountain National Park. This fungus was responsible for boreal toad die-offs in the park and other regions of the state in 1999.

Salmonellosis, a common cause of songbird mortality in the US, continues to impact birds in several states. Die-offs were reported from Michigan, North Carolina, Tennessee, Washington, West Virginia, and Wisconsin with mortality occurring in a variety of species commonly associated with bird feeders. Widespread songbird die-offs were reported earlier this year in the eastern and Midwestern United States.

Strong winds blew 3 unbolted electrical power transformers from their utility poles spilling approximately 240 gallons of mineral oil-based insulating fluid into a series of small ponds in Barton, Oregon. Eight mallards and at least 2 nutria were impacted by the unusual spill. Four of the affected ducks died while the remainder were cleaned and released. It is unknown if mortality occurred among the nutria inhabiting the ponds.

Tick paralysis was reported from an American Robin and a Chipping Sparrow submitted to the Southeastern Cooperative Wildlife Disease Study for evaluation. An engorged *Ixodes brunneus* tick was found on each bird. Several species of ticks are associated with tick paralysis but *I. brunneus* is the primary tick known to cause this condition in birds. Paralysis is caused by a neurotoxin secreted by the tick's salivary glands, and prompt removal of the tick usually results in full recovery of the animal if no associated traumatic injuries have occurred.

QUARTERLY WILDLIFE MORTALITY REPORT

April 2000 to June 2000

State	Location	Dates	Species	Mortality	Diagnosis	Reported by
CA	Humbolt Bay NWR	03/30/00–03/30/00	Red-legged Frog	6	Open	NW
CA	Seeley	05/23/00–05/23/00	Brown Pelican	9	Toxicosis: carbamate	NW
CA	Shasta Co., Whiskeytown NRA	6/14/00-ongoing	Bull Frog	100's(e)	Viral Infection: Iridovirus	NW
CA	Sonny Bono Salton Sea NWR	04/05/00-ongoing	American White Pelican California Gull Double-crested Cormorant	8	Botulism type E	NW
CO	Kettle Tarn, Rocky Mountain NP	05/01/00-ongoing	Boreal Toad	2	Fungal Infection: chytrid	NW
CO	Monte Vista NWR	05/04/00–06/13/00	Unidentified Phalarope European Starling Unidentified Egret	100 (e)	Botulism suspect	AM
FL	Collier Co.	02/01/00–06/16/00	Logger Head Turtle Riddley Sea Turtle	79	Open	FW
GA	Glynn Co.	02/22/00–02/25/00	Yellow-rumped Warbler Unidentified Bird	12	Lead poisoning	SC
GA	Madison Co.	02/19/00–02/25/00	Solitary Vireo Chipping Sparrow American Robin	2	Parasitism: Tick paralysis suspect	SC NVSL
IA	Winneshiek Co.	03/31/00–03/31/00	Red-winged Blackbird Common Grackle	25 (e)	Open	NW
ID	Boise	04/01/00–04/01/00	American Wigeon Black-billed Magpie	5	Toxicosis: diazinon	ID, NW
MA	Hampshire Co.	06/19/00-ongoing	Wood Frog Spotted Salamander	100's(e)	Viral Infection: Iridovirus	NW
ME	Acadia NP	06/26/00-ongoing	Spring Peeper Spotted Salamander	100's(e)	Viral Infection: Iridovirus	NW
MI	Marquette	01/09/00–06/15/00	Common Redpoll Purple Finch Evening Grosbeak Northern Cardinal	107	Salmonellosis, (S. typhimurium)	NW, RL
MN	Crow Wing Co.	06/15/00-ongoing	Green Frog Mink Frog	100's(e)	Infection: Suspect yeast	NW
MN	Esden Lake	06/20/00-ongoing	Mink Frog	100's(e)	Viral Infection Iridovirus	NW
MN	Ramsey Co.	06/01/00–06/04/00	American Crow	4	Aspergillosis	NW
MN	Winona Co.	05/01/00–05/05/00	Pickerel Frog Northern Leopard Frog	6	Trauma suspect	NW
MT	Sheridan Co.	06/28/00-ongoing	Mallard Muskrat American Coot Eared Grebe Brown-headed Cowbird	402	Open	NW
NC	Macon Co.	02/05/00–05/10/00	Pine Siski American Goldfinch Purple Finch Evening Grosbeak Northern Cardinal	1,000 (e)	Salmonellosis	NW, SC
NC	Graham Co.	03/27/00-ongoing	Wood Frog Spotted Salamanders	1000's(e)	Open	NW
NC	Graham Co.	06/12/00-ongoing	Bull Frog Spotted Salamanders	10 (e)	Viral Infection: Iridovirus	NW

QUARTERLY WILDLIFE MORTALITY REPORT

April 2000 to June 2000

Continued

State	Location	Dates	Species	Mortality	Diagnosis	Reported by
ND	Kidder Co.	06/21/00-ongoing	Unidentified Grebe	1233	Botulism Suspect	NW
ND	Stutsman County	06/04/00-ongoing	Tiger Salamander	1,000 (e)	Viral Infection: Iridovirus	NW
NE	Omaha	06/27/00-ongoing	Canada Goose Wood Duck Domestic Goose	30 (e)	Botulism type C	NW
NV	Churchill Co.	05/15/00-05/16/00	American White Pelican Western Grebe	50 (e)	Trauma: gunshot	NW
OH	Fort Mitchell	06/05/00-06/22/00	Screech Owl Cooper's hawk Red-shouldered hawk Great-horned owl	9	Toxicosis suspect	NW
OH	Goshen	06/14/00-06/17/00	Canada goose	3	Toxicosis: diazinon suspect	NW
OH	Highland Co.	03/01/00-03/09/00	Unidentified Owl Unidentified Weasel Raccoon Red-tailed Hawk Unidentified Rabbit	10 (e)	Open	NW
OR	Clackamas Co., Barton	06/12/00-06/12/00	Mallard Nutria	4 (e)	Toxicosis: mineral oil suspect	OR
PA	Lehigh Co.	04/20/00-05/04/00	Muscovy Duck Pekin Duck Domestic Swan	12	Duck plague	NW
SC	Charleston Co.	06/08/00-ongoing	Muscovy Duck Mallard	17 (e)	Duck plague	SC
TN	Great Smokey Mtns.	05/10/00-ongoing	Wood Frog Marbled Salamander Eastern Spotted Newt	100's(e)	Viral Infection: Iridovirus	NW
TN	Blount Co.	05/10/00-05/17/00	Pine Siskin	8 (e)	Salmonellosis	NW
WA	Okanogan Co.	05/18/00-ongoing	Pine Siskin Cassin's Finch	100 (e)	Salmonellosis	NW
WI	Marinette Co.	04/01/00-04/15/00	Common Redpoll	20 (e)	Salmonellosis	WI
WV	Tucker Co., Canaan Valley NWR	04/01/00-04/05/00	American Goldfinch Fox Sparrow Pine Siskin	4	Salmonellosis (S. typhimurium)	NW

Alamosa/Monte Vista National Wildlife Refuge, CO (AM) California Dept. of Fish & Game-Wildlife Invest. Lab (CA); U.S. Fish and Wildlife Service, Ft. Myers, FL (FW); Nat'l Wildlife Health Center (NW); Idaho Wildlife Health Lab, Caldwell, ID (ID); National Veterinary Services Lab, Ames IA (NVSL); U.S. Fish and Wildlife Service, Portland, OR (OR); Rose Lake Wildlife Disease Lab, MI (RL); Southeastern Cooperative Wildlife Disease Study (SC); Wisconsin Department of Natural Resources (WI).

Written and compiled by Kathryn Converse, Kimberli Miller, Linda Glaser, Terry Creekmore, and Audra Schrader, NWHC. The Quarterly Wildlife Mortality Report is also available on the Internet at <http://www.umesc.usgs.gov/nwhcchrome.html>. To report mortality or if you would like specific information on these mortalities, contact Kathryn Converse or Kimberli Miller; West Nile Virus-Linda Glaser; Hawaiian Islands-Thierry Work. Phone (608) 270-2400, FAX (608) 270-2415 or E-mail kathy.converse@usgs.gov. National Wildlife Health Center, 6006 Schroeder Road, Madison, WI 53711.



FIGURE 4. Photograph of Tick A.

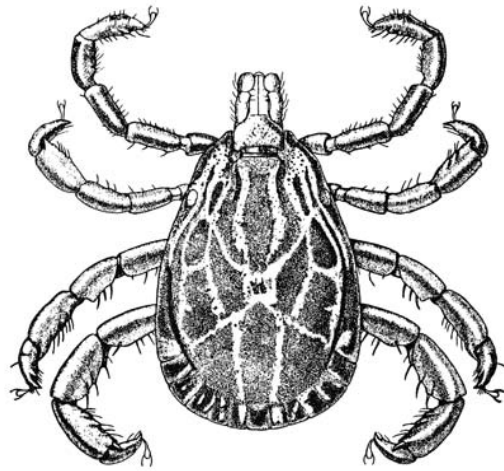


FIGURE 5. Drawing of Tick B.

DIAGNOSTIC RIDDLE—ANSWER:

Answer: Yes!!

Comment: Ticks are commonly found on wildlife but would we recognize an exotic tick? Both of the above ticks are found in the Western Hemisphere. “A” is the tropical bont tick (*Amblyomma variegatum*). This tick is native to Africa, but it was introduced to and is established in the Caribbean. It is the vector of two exotic disease agents currently found in the Caribbean, *Cowdria ruminantium* and *Rickettsia africae*. *Cowdria ruminantium*, the agent of heartwater, is found in Africa, and in Antigua, Guadeloupe, and Marie Galante in the Caribbean. *Rickettsia africae* is the agent of African tick bite fever, a disease reported for the first time in humans in the Western Hemisphere in 1998 in Guadeloupe. “B” is the Gulf Coast tick (*Amblyomma maculatum*), a common tick in the southeastern United States. Exotic ticks may enter the United States via a variety of means including imported exotic animals and migratory birds. Unfamiliar ticks should be submitted to a qualified laboratory for identification. The Pathobiology Laboratory, National Veterinary Services Laboratories, APHIS, USDA, Ames, Iowa, 50010 (telephone: 515-239-8521), conducts the National Tick Surveillance Program, and is the official USDA laboratory for the identification of exotic ticks in the United States. Joe Corn, Southeastern Cooperative Wildlife Disease Study, College of Veterinary Medicine, University of Georgia, Athens, GA 30602

WDA SECTION NEWS

European Section. Material suitable for publication in the Newsletter includes news of recent wildlife disease outbreaks in Europe, short case reports, announcements and reports of relevant meetings in Europe, and job and scholarship announcements. Submissions should be in English, but members for whom English is a second language and who send material in basic English or in their own language, will be accommodated as far as possible. Deadline for submission of articles for the next issue (January 2001) is 21 November 2000. Please mail (floppy disk preferred), fax or e-mail submissions to Seamus Kennedy, Veterinary Sciences Division, Department of Agriculture and Rural Development, Stoney Road, Stormont, Belfast BT4 3SD, Northern Ireland; telephone +44 (028) 90525701, fax: +44 (028) 90525767, e-mail: seamus.kennedy@dardni.gov.uk

WDA SECTION CHAIRS AND CONTACT INFORMATION

Australasian Section. For information regarding the Australasian Section, contact Lee Skerratt, School of Veterinary Science, University of Melbourne, Princes Hwy, Werribee, Victoria 3030 Australia. Telephone: 61 3 9742 8330; fax: 61 3 9741 0401; email: skerratt@pgrad.unimelb.edu.au

European Section. For information regarding the European Section, contact Torsten Morner, The National Veterinary Institute, Department of Wildlife, Box 7073, S750 07, Uppsala, Sweden. Telephone: +46-1867-4214; fax: +46-1830-9162; email: Torsten.Morner@SVA.SE

Latin American Section. For information regarding the Latin American Section, contact Alonso Aguirre, TUSVM Wildlife Clinic, 200 Westboro Road, North Grafton, MA 01536, USA. Telephone: (508) 839-7918; fax: (508) 839-7930; email: aguirre@wpti.org

Nordic Section. For information regarding the Nordic Section, contact Hans-Henrik Dietz, Danish Veterinary Laboratory, Department of Fur Animal and Wildlife Diseases, 2 Hangovej, DK-8200 Aarhus N, Denmark. Telephone: 45-89-37-24-17; fax: 45-89-37-24-70; email: hhd@svs.dk

Wildlife Veterinarian Section. For information regarding the Wildlife Veterinarian Section, contact Dr. Terry Kreeger, Wyoming Game and Fish Department, 2362 Highway 34, Wheatland, Wyoming 82201 USA. Telephone: 307-322-2571; FAX 307-766-5630; email: tekreege@wyoming.com

AVAILABLE PUBLICATIONS

New Version Available! The USGS-National Wildlife Health Center is pleased to announce that the "Field Manual of Wildlife Diseases: General Field Procedures and Disease of Birds" has been completed. This field manual is a revision and expansion of the 1988 "Volume 1: Field Guide to Wildlife Disease" and is funded by an Administrative Grant from the U.S. Fish and Wildlife Service, Division of Federal Aid. The Table of Contents and an order form can be found at: http://www.entic.nbs.gov/http_data/nwhc/metapubs.html

JOB OPPORTUNITIES

Director of Veterinary Services. Nation's leading wildlife hospital seeks highly motivated, outgoing team-oriented veterinarian with proven clinical, management and teaching skills to direct rehabilitation, training and research programs. Three plus years of wildlife experience required. Send resume, cover letter, salary requirements and three references to: Edward E. Clark, Jr., President, The Wildlife Center of Virginia, PO Box 1557, Waynesboro, VA 22980. Closing date 10/31/00. See complete job description at www.wildlifecenter.org

TRAINING/EDUCATIONAL OPPORTUNITIES

Pfizer Clinical Residency in Zoological Medicine. The Wildlife Conservation Society of Bronx, NY and Pfizer Corporation are offering a 3 year clinical residency in zoological medicine starting 1 July 2001. The program consists of medicine, surgery, treatment, anesthesia, pathology and preventive medical programs for aquatic and terrestrial animals. Training takes place at the WCS facilities, including the Bronx Zoo, New York Aquarium and 3 Wildlife Centers/Zoos in the City of New York. Collateral programs at local universities and specialty animal clinics are also included. The clinical resident assumes increasing clinical responsibilities during the 3 year training period. There is an emphasis on an area of academic interest and preparation of materials for scientific publication and presentation to peers. This residency was approved by the ACZM as meeting the criteria for board eligibility. Competitive salary and benefits are offered. During the first year, the resident must obtain a license to practice veterinary medicine in the State of New York.

Applicants must have a DVM, VMD or equivalent degree from an AVMA accredited veterinary school. At least 1 year of practical experience with emphasis on non-domestic animal medicine, an internship, or similar training is strongly recommended. Interested persons should submit a letter of interest, curriculum vitae, 3 letters of recommendation and professional school transcripts by 16 November 2000 to:

attn. Clinical Veterinary Residency
Human Resources Department
Wildlife Conservation Society
2300 Southern Blvd, Bronx, NY 10460

Additional information may be obtained by calling Drs. Calle or Raphael at 718-220-7104 or by email at: braphael@wcs.org/pcalle@wcs.org. Equal opportunity employer M/F/H/V.

Veterinary Externship in Fish Health and Laboratory Methods. The Olympia Fish Health Center is one of nine Fish Health Centers within the U.S. Fish and Wildlife Service and is located in Olympia,

Washington. We provide diagnostic laboratory and field examination services to six National Fish Hatcheries on the Olympic Peninsula and mid-Columbia River Basin, collect and process samples for the National Wild Fish Health Survey, and cooperate in the National Aquaculture Drug Registration Project. We also work in cooperation with the Tribal and State Fish Health Laboratories that are located in Olympia.

The Olympia Fish Health Center routinely uses bacteriology (biochemical, ELISA, and PCR methods), virology (cell culture, serological, and PCR methods), parasitology (microscopic and PCR methods), histology, and clinical chemistry testing to aid the hatcheries in producing quality fish that will contribute to the enhancement and restoration of fish stocks and other aquatic species. We collect most of the samples ourselves during field examinations of adult and juvenile fish and then return to our laboratory in Olympia to run the assays. Our busiest time of the year is September through November when multiple species of Pacific salmon are spawning at our hatcheries. We collect various tissue samples from these returning adults to monitor for some common and regulated fish pathogens. This information is used to prepare Broodstock Inspection Reports and may be beneficial in designing disease prevention and control methods for the eggs and offspring of these adults.

Student externs will visit several National Fish Hatcheries, perform field examinations on juvenile fish, take samples for Broodstock Inspections, process samples for bacterial culture, virus culture, ELISA and PCR assays. Independent study projects are encouraged and we will provide technical assistance and guidance wherever possible. All opportunities will be taken to expose the Extern to as many fish culture facilities and fish disease situations as possible, and, time will be provided for discussions with other fish health professionals.

Students that are interested in gaining experience working in Aquaculture and/or diagnostic laboratory methods are encouraged to apply. Duration of the Externship and times of year other than September, October, and November may be arranged to accommodate the student's schedule. For more information and application forms please contact Joy Evered, DVM at Olympia Fish Health Center, 3704 Griffin Lane SE, Suite 101, Olympia, WA 98501. Telephone: 360-753-9046; Fax: 360-753-9403; or email at joy_evered@fws.gov

Post-Doctoral Fellowship in Marine Mammal Research. An 18 month postdoctoral fellowship commencing January 1, 2001 will be offered by the Division of Marine Mammal Research and Conservation, Harbor Branch Oceanographic Institution (HBOI), Ft. Pierce, Florida. The Division of Marine Mammal Research and Conservation has multifaceted programs involving marine mammal strandings, manatee rescue and rehabilitation, free-ranging bottlenose dolphin photo identification and broad research investigating the pathologic basis of disease in marine mammals. The HBOI Marine Mammal Stranding Center provides temporary or long-term care for various marine mammal species. Animals which can be treated successfully are rehabilitated, released and typically monitored post-release via telemetry devices. Collaborative programs in medicine exist with the Miami Seaquarium and marine mammal facilities in Mexico, Belize, Argentina, and Brazil. Pathologic studies involve the gross and histopathologic characterization of diseases in marine mammals with special emphasis on the effects of biotoxins in these species. Collaborative programs in pathology exist with the Wildlife and Avian Laboratory, Division of Comparative Pathology, Department of Pathology, University of Miami School of Medicine, Miami, Florida. An opportunity is also available for the postdoctoral fellow to interact with the Division of Aquaculture at HBOI, which has intensive programs in clam, shrimp and tropical fish aquaculture.

An original research project, the results of which will be written for publication in a peer-reviewed scientific journal, is required for successful completion of this program. In addition, the postdoctoral fellow will be responsible for coordinating marine mammal rescues, handling all aspects of clinical care for marine mammal patients, and completing necropsies with the supervision of the HBOI marine mammal staff. Follow-up histopathologic tissue evaluations will be done with the resident comparative pathologist or at the University of Miami School of Medicine.

Applicants must possess a D.V.M. or equivalent degree. Selection of the successful applicant will be based on a combination of academic, relevant interest and experience, and an assessment of the candidate's career goals and objectives. The stipend is currently \$27,072 annually, and the fellowship is non-renewable. Requests for further information and application procedures should be addressed to Gregory D. Bossart, V.M.D., Ph.D., c/o personnel@hboi.edu. Harbor Branch Oceanographic Institution, 5600 U.S. 1 North, Ft. Pierce, FL 34946. Telephone: (561) 465-2400, x604; FAX: (561) 595-3332. For information about Harbor Branch, please consult our website, <http://www.hboi.edu>

Directory of Post-Graduate Educational Opportunities in Zoo and Wildlife Medicine. The World Association of Wildlife Veterinarians has recently produced a Directory of Post-Graduate Educational Opportunities in Zoo and Wildlife Medicine. The Directory covers opportunities in over fifty countries and is a must for veterinary students or graduates interested in furthering their careers in the field of wildlife medicine. For further information, please contact the Secretary of the WAWV at: F.Sculion@zoo.co.uk

MEETING ANNOUNCEMENTS

Joint Conference of the Australasian Section of the Wildlife Disease Association and the Wildlife Society of the New Zealand Veterinary Association. December 3–10, 2000; Marine Biology Field Centre, Goat Island Marine Sanctuary, Leigh, New Zealand. For more information contact Padraig Duignan, Wildlife Conference Leigh, Institute of Veterinary, Animal, and Biomedical Sciences (IVABS), Massey University, Private Bag 11-222, Palmerston North, New Zealand, Fax: 64 6 350 5636, Email: P.J.Duignan@massey.ac.nz

Veterinary Conservation Biology: Wildlife Health and Management in Australasia. July 2–6 2001; Taronga Zoo, Sydney, NSW, Australia. This will be a combined meeting of the Australasian WDA, Australian Association of Veterinary Conservation Biology, World Association of Wildlife Veterinarians, and the Wildlife Interest Group of the New Zealand Veterinary Association. The focus of the conference will be a range of issues crucial to wildlife health and management and the conservation of biodiversity in the Australasian region. For general conference information, please contact the Program Convenor: Dr Larry Vogelnest, Taronga Zoo, PO Box 20, Mosman NSW 2088, Australia. Fax: 61 2 99784516; E-mail: lvogelnest@zoo.nsw.gov.au

Wildlife Disease Association and the Society for Tropical Veterinary Medicine (STVM) Conference. July 22–27, 2001; Kwa Maritane, Pilansberg National Park, South Africa. Plan now! The Wildlife Disease Association (WDA) and the Society for Tropical Veterinary Medicine (STVM) will hold a joint meeting with the theme “Wildlife and Livestock Disease and Sustainability: What Makes Sense?” from July 22–27, 2001 at Kwa Maritane, Pilansberg National Park, South Africa. The location and program will allow government scientists, university researchers, conservationists and policy/decision makers to consider various aspects of wildlife and livestock management and diseases, including those that devastate both wildlife and livestock, issues of sustainability, and what types of approaches and programs make sense in the new millenium.

Conference information, travel information, registration and the call for papers will be handled by Event Dynamics, P.O. Box 411177, Craighall 2024, South Africa. Telephone: 27 11 442 611; Fax: 27 11 442 5927. Email: sandra@eventdynamcis.co.za Further information will be available on the WDA and STVM websites and upcoming newsletters.

Note from the Editor: Please send meeting announcements, diagnostic riddles, position and grant announcements, miscellaneous items, etc. for the Supplement to the Journal of Wildlife Diseases to Charlotte F. Quist, SCWDS/Athens Diagnostic Lab, College of Veterinary Medicine, University of Georgia, Athens, Georgia 30602; telephone: (706) 542-5349; fax: (706) 542-5977; e-mail: CQUIST@CVM.VET.UGA.EDU **Double spaced typewritten or electronic mail files in WordPerfect 5.1 or Microsoft Word are preferred.** The deadline for submission of articles for the next issue (January 2001, JWD Vol. 37, No. 1) is November 25, 2000.

The WILDLIFE DISEASE ASSOCIATION is dedicated to the conservation of wildlife through sharing the study and understanding of diseases of wild animals. The objective of the Association is to advance knowledge of the effects of infectious, parasitic, toxic and physiologic diseases and other factors upon the health and survival of free-living and captive wild animals, upon populations of wild animals and upon their relationships to humans.

The Association is an international organization, open to anyone interested in accomplishing the above objective. Members receive the quarterly Journal of Wildlife Diseases and Supplement (Wildlife Disease Newsletter). Should you wish to join, submit the following information and membership fees to THE WILDLIFE DISEASE ASSOCIATION, Business Office, P.O. Box 368, Lawrence, Kansas, USA 66044.

Name _____

Address _____

Phone _____ FAX _____

E-mail _____

Degrees _____

Areas of Expertise _____

I would like to join the Wildlife Disease Association as a:

_____ Regular Member (60.00 US\$ per year)

_____ Student Member (30.00 US\$ per year)

_____ Institutional Subscription (100.00 US\$ per year)

Verification of student status: _____

Signature of Major Professor

_____ I have enclosed a check or money order payable to the Wildlife Disease Association.

_____ Please charge my

_____ MasterCard Card Number: _____

_____ VISA Expiration Date: _____

Signature: _____

Total payment: _____

Date you wish to start your membership: January _____