

REPORT OF THE COMMITTEE ON PARASITIC DISEASES

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The Committee met on October 13, 2009 at the Town and Country Hotel, San Diego, California, from 8:00 am to 12:00 pm. There were 11 members and 17 guests present.

Dr. Joseph Corn, Southeastern Cooperative Wildlife Disease Study, University of Georgia, Athens, Georgia; and Dr. James Mertins, USDA-APHIS-National Veterinary Services Laboratories, Ames, Iowa, gave a report on exotic ectoparasites collected from wildlife in Florida during recent surveys for exotic livestock arthropods in the Southeastern United States. Surveys are being conducted via capture and examination of free-ranging wildlife in cooperation with the USDA-APHIS-Veterinary Services. Examples of recent findings included ticks, mites and lice not previously reported in the United States. Additional examples were new host records of ticks, lice and mites collected from established species of exotic reptiles. It is clear that a diversity of exotic ectoparasites are becoming established in Florida, and that new host-parasite relationships are developing among exotic and native ectoparasites, and exotic and native wildlife.

Dr. Ken Waldrup, Texas Department of State Health Services, El Paso, Texas; Dr. Pete Teel, Department of Entomology, Texas A&M University, College Station, Texas; and Dr. James Mertins, USDA-APHIS-National Veterinary Services Laboratories, Ames, Iowa, gave a report on the collection of *Amblyomma triste* from white-tailed deer in West Texas. In July 2008, two native female white-tailed deer were collected by gunshot with permission from the Texas Parks and Wildlife Department from a ranch on the north side of the Davis Mountains in Jeff Davis County, Texas. As part of the necropsy of these animals, adult ticks were collected and stored in 70% isopropyl alcohol. Some of these ticks were initially identified as *Amblyomma maculatum*, the Gulf Coast tick. Specimens were submitted to the National Veterinary Services Laboratories via the Texas tick identification system. Because the Trans-Pecos region of Texas is not part of the recognized geographical range of the Gulf Coast tick, additional specimens were submitted to Texas A&M University. Subsequently these ticks were identified by both the NVSL and Texas A&M as *Amblyomma triste*, a Neotropical tick species similar to *A. maculatum*.

Dr. Francisco Collazo-Mattei, United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Veterinary Services (VS) gave a report on the importation of reptiles and exotic ticks into the United States. The importation of reptiles into the United States through the port of Miami currently is estimated at between 20,000 and 50,000 animals per week for a total of more than two million reptiles per year. Some of these reptiles, coming from Africa, Asia, and South America, are infested with ticks exotic to the United States. Some of the exotic *Amblyomma* tick species are capable of harboring heartwater disease, a serious livestock disease of Africa with a high mortality rate, and heartwater and other diseases may be introduced into the United States via these exotic ticks. The United States Department of the Interior has banned the importation of certain reptile species that are considered endangered or invasive and the USDA in 2004 prohibited certain reptile species from being imported into the United States when found to carry *Amblyomma* species ticks. In 2009, the United States Fish and Wildlife Services (USFWS) and the USDA found 30 tick-infested reptile importations out of 4,491 import inspections. The introduction of exotic ticks and the possibility of foreign animal disease entry through imported reptiles raise significant concerns. For this reason, Florida currently maintains very strict requirements for livestock moving from the U. S. Virgin Islands due to the presence of *Amblyomma*

and *Boophilus* ticks. Currently, cattle are required to be isolated in tick-free areas for at least 21 days, be treated at least three times with an approved acaricide before departure, and re-inspected and re-treated upon arrival in Florida. The impact of such a regimen on cattle moving interstate here on the mainland would wreak havoc on our livestock industries. Work is now being done with the USFWS and USDA, APHIS, VS to target inspections on shippers who in the past have imported reptiles infested with ticks and on shipments from countries known to have animals infected with heartwater disease. The USDA, APHIS, VS, National Veterinary Services Laboratories has provided training on tick inspections to one USDA inspector in Miami and funding for an additional tick inspector is being requested.

Dr. Matthew Messenger, United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Veterinary Services (VS) gave a National Update on the Cattle Fever Tick Eradication Program. Cattle fever tick, *Rhipicephalus* (= *Boophilus*) *microplus* and *R. annulatus*, outbreaks within the free areas and the permanent quarantine buffer zone of South Texas have increased dramatically since 2004. During fiscal year (FY) 2009, there were 145 newly-recorded fever tick-infested premises in South Texas, which was the second highest total number of infested premises recorded during a single FY since 1973. One of the most important factors responsible for this increase involves the free-ranging movement of fever tick-infested native white-tailed deer and various exotic ungulate species. At the same time, these deer are capable of maintaining fever tick populations on livestock-vacated pastures. Other important factors include the presence of established fever tick populations on the Mexican side of the Rio Grande, the presence of ticks on stray and smuggled Mexican livestock, and the lack of long-lasting treatments for ticks on livestock and deer. Fortunately, funding for the Program is projected to increase to \$13.1 million for FY 2010, an increase of over \$4 million from FY 2009. The increased funding, including emergency funding from FY 2009, will help the Program begin initiating new and/or enhanced eradication strategies, such as constructing deer-proof fencing along the permanent quarantine line, treating white-tailed deer on the Boca Chica Preserve, provide personnel to inspect livestock for the voluntary livestock movement notification and inspection, and support the development and implementation of currently unavailable anti-tick vaccines and long-lasting treatments, such as Gavac and injectable microspheres containing ivermectin, for fever tick control on livestock. Continuing into FY 2010, APHIS and the Texas Animal Health Commission will continue the systematic treatment of fever tick-infested livestock and deer in both the free and permanent quarantine areas of South Texas. In addition, APHIS will finalize the environmental assessments required for the new initiatives, and increase collaborations with the local, state, and national livestock industries, and increase communication with Mexican state and federal government officials to improve cooperation between the eradication programs of both countries.

Dr. J. Mathews Pound, United States Department of Agriculture (USDA), Agricultural Research Service, Knipling-Bushland U.S. Livestock Insects Research Laboratory, Kerrville, Texas, gave an update on Control of Ticks on Wildlife. From 1907, when the fever tick eradication campaign began, until 1933, the eradication methods of dipping cattle in an acaricide and "pasture vacation" were enormously successful in eradicating southern cattle ticks, *Rhipicephalus* (*Boophilus*) *microplus*, but in 1933 failures began to occur in Florida. The consensus was that populations of white-tailed deer infested with these ticks were acting as alternative hosts in maintaining and dispersing tick populations. Only after thousands of deer in several counties were depopulated was eradication achieved in Florida. In Texas, the pasture vacation approach to tick eradication is becoming less efficacious, and increasing numbers of failures are thought to be related to increased populations of white-tailed deer and perhaps other wild ungulate species. Significant evidence confirms that white-tailed deer support the dispersal and maintenance of southern cattle ticks and cattle ticks, *Rhipicephalus* (*Boophilus*) *annulatus*, within the Permanent Quarantine or Buffer Zone in South Texas along the Rio Grande from Del Rio to Brownsville, TX, as well as in the so-called Free Area north and east of the Buffer Zone. As of September 2009, in addition to the Permanent Quarantine Zone of approximately 2,233 km², three Temporary Preventative or Blanket Quarantines totaling an additional 3,619 km² were established. Currently, only one systemic and 2 topical acaricidal treatment methods are available to control ticks feeding on white-tailed deer: 1) systemic treatment through dispersal of ivermectin-medicated corn and 2) two topical treatment devices, the '4-Poster' Deer Treatment Bait Stations and the '2-Poster' Deer Treatment Feeder Adapters. Data summaries were derived from historical records, circumstantial evidence from review of recent infestations, and results of cattle fever ticks observed feeding on white-tailed deer that were live-captured

and examined specifically for ticks, and these data form the basis of conformational support for the role of white-tailed deer in the epidemiology of cattle fever ticks in South Texas.

Dr. Cynthia Duerr, United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), International Services (IS), Comisión Panamá - Estados Unidos Para La Erradicación y Prevención Del Gusano Barrenador Del Ganado (COPEG) gave an update on Screwworm Eradication in the Americas. Screwworm remains endemic in various Caribbean countries and much of South America. The aim of the APHIS Screwworm Program is to protect US agriculture by preventing reintroduction of screwworm disease into the United States. APHIS currently participates in two bilateral commissions with two program sites: COMEXA and COPEG. The COMEXA site in Chiapas, Mexico has a current production capacity of 250 million flies per week and produced flies that eradicated the disease throughout Central America. Current plans are to maintain this plant, as the program continues to move from disease eradication to disease exclusion, as an alternate production site while future eradication programs in remaining positive countries are considered. In Panama, the program produces sterile flies, disperses over the barrier zone, conducts field surveillance and works with ARS on various research topics. Although the Pacora facility was inaugurated in 2006, it wasn't until this spring that dispersal of Panamanian flies began. Current production is at the level of 40 million flies per week, with current capacity of 60 million. This is more than adequate for maintenance of the barrier, but not adequate for elimination of outbreaks, especially should concurrent outbreaks occur. In the future the capacity may be increased to 100-160 million. Some differences between Pacora and Tuxtla include the diet materials used and irradiation methods. After earlier efforts to use X-ray, in 2009 a Cobalt 60 unit was brought on line and is now being used. The Darien Region of Panama, at the end of the Interamerican Highway, was selected as a permanent barrier to prevent screwworm reintroduction into Central and North America. Just last year, the USDA officially recognized Panama as free of screwworm, 14 years after the creation of COPEG and 10 years after eradication began. Approximately 38 million flies are dispersed over this area weekly in 8 flights. In recent years the Dispersal Center has developed new methods for hatching pupae that have improved the yield from as low as 65-75% to a consistent average of over 85%. The biggest change has been the modification of Worley and Tween towers used in fruit fly production for screwworm pupae. Not only is yield higher, other quality measures such as flight agility and longevity appear to be improved. Additional advantages of these tower systems are the decreased energy costs, decreased labor and improved conditions for those rearing the flies compared with traditional chamber maturation. From 2004 to 2009 Panama has had isolated positive screwworm cases in the barrier zone. Field operations continues to conduct surveillance, monitor animal movement, and provide education and outreach. At the start of the rainy season in May of 2009, the first case of screwworm outside of the barrier zone since 2003 was detected in Colón province. It was almost immediately evident that this was not an isolated case. In subsequent weeks, 16 additional positive cases were diagnosed- all within a 10km radius of the first. The majority of cases were bovine, only two of which were infested navels. A piggery near the center of the outbreak had 4 positive cases, with the remainder being found in dogs and one person. Field surveillance and aerial dispersal began immediately. For the first time in Panamá, ground dispersal was also used. Animal movement control points were set up on all main roads exiting the area. The last positive case was detected on June 2nd. It is unclear what caused the outbreak. While it is convenient to consider a wildlife reservoir, this is inconsistent with known biology. Movement of infected animals is possible, but no we have not discovered any other focus of infected animals. The possibility that an infected animal transited the canal is possible; but again, remote. We are awaiting DNA testing of the positive larvae. We hope that this will provide information as to the type of fly strain at the least. Preliminary analysis is that the direct costs of the outbreak were 1.5 million dollars. Significant certainly, but small in comparison with 1.8 billion in beef exports from Panama to Mexico alone last year, and small in comparison with the potential consequences to Panama, Central America, Mexico and the United States should re-infestation occur. One positive result of the outbreak is the identification of various areas for improvement. These include maintaining a higher level of alert, decreasing sample turnaround time, getting check points established and other logistical issues. At the same time, a great deal of cooperation, flexibility, dedication and teamwork were demonstrated. We are now in the process of implementing various improvements to our program including revising emergency protocols, improving sample handling and reporting systems, updating our GIS capability, and generally improving communications and preparedness.

Dr. Thierry Lefrancois, Centre International de Recherche en Agriculture pour le Développement (CIRAD), Guadeloupe, French West Indies provided an update on the tropical bont tick in the Caribbean Region and a summary of the output of a CaribVET Working Group on the tropical bont tick. The tropical bont tick (TBT) is a historical burden for cattle and small ruminant production in the Caribbean islands, transmitting heartwater disease, and inducing dermatophilosis, anaemia and infections. Treatments have been ongoing in most islands of the smaller Antilles for long periods of time under a multipartners/multicountries project (Caribbean Amblyomma Programme, CAP) attempting to control/eradicate TBT. The CAP was the first multi-country approach of an animal health problem in the Caribbean and it promoted the creation of a regional animal health network named CaribVET in which veterinary services of the Caribbean and regional/international organizations work together to improve and harmonize the surveillance and control of animal diseases. The CAP ended in 2008 and was followed by a project of national veterinary epidemiologists/paraepidemiologists (VEP) funded by USDA-APHIS under the strategy of CaribVET. A CaribVET working group on tick and tick borne disease met in Fort Collins, Colorado, October 1-2, 2009 in accordance with a resolution from the 2008 meeting of the USAHA. It gathered veterinary services from 12 Caribbean countries or territories including those from the previous CAP (Antigua, Barbados, Dominica, Nevis, St Lucia, St Maarten, St.Kitts, St.Vincent), French islands (Guadeloupe and Martinique) and USA territories (Florida and St Croix), plus experts on tick and tick borne diseases from CIRAD and CEAH, Fort Collins, USA and previous CAP. Presentations were given by CIRAD Guadeloupe, USDA-APHIS-VS-CEAH, on the following: research needs for heartwater and TBT, surveillance planning and previous heartwater/CAP risk assessment, analysis of CAP data, spatial analysis and vector-borne diseases, habitat suitability models for three host ticks, mathematical framework for potential tick presence. The group reviewed the current surveillance and control programs in the different Caribbean countries and in the USA, in particular reviewed the changes associated with the end of the CAP. A questionnaire sent before the meeting to all the countries helped to assess the current situation regarding animal population (evolution, main breeds, density, exchange between countries), surveillance system (protocol, type of surveillance, level of surveillance), level of control, limiting factors for TBT surveillance and control. The group worked on the use of risk factor analysis, spatial analysis and modelling of tick population dynamic for improvement of surveillance and treatment. The group developed recommendations for surveillance and control protocols including both regional recommendations and specific recommendations according to the current level of TBT prevalence. The group also worked on data to be collected by the countries for analysis purpose (spatial analysis, modelling).

Dr. Dee Ellis, Texas Animal Health Commission (TAHC), provided an update on the ongoing tick eradication activities along the Rio Grande Border in South Texas by USDA and TAHC. A summary of the information provided is as follows:

Cattle Fever Ticks

- 145 NEW infestations identified for Federal Fiscal year 2009 as of September 15, 2009
- 157 premises under previously existing quarantines
- (fever tick-infested premises are quarantined a minimum of nine months)
- 94 premises EXPOSED to fever ticks
- 498 premises are adjacent (also called "check premises") to quarantined premises
- 739 premises are currently quarantined due to fever ticks, a record number since the 1970s.

When fever tick infestation is detected, cattle that were moved from the ranch in the past year must be traced, inspected and treated. Fortunately, tick-infested cattle have not been found outside of South Texas, but exposed cattle have been moved across Texas and to sites in some other states in the last year, which requires that they be traced and examined. For that reason the fever tick issue is a national concern, not just a Texas problem. Re-establishment of the tick into acceptable habitat across the US would create significant economic hardship to the cattle industry. Some South Texas ranchers have reported the loss of clients, due to the tracing requirements, and increasingly, buyers are demanding that South Texas cattle be inspected and treated prior to movement from the area.

The livestock industry is committed to helping the TAHC and USDA in Texas acquire the \$14.2 million budget needed to fully fund the fever tick program, which would also potentially include the inspection and treatment of cattle moved through the seven South Texas livestock markets, or transported directly from

non-quarantined premises in the area. This inspection and treatment is the only way to ensure cattle are fever tick-free when they leave the area, as long as ticks continue to pose an on-going threat.

The TAHC, in its 2010 state budget, has received funding for five temporary fever tick inspectors to complement the USDA's Tick Force. The USDA has provided cooperative agreement funding for five more temporary fever tick positions in the Carrizo Springs area. This agreement will allow the agencies to sustain the number of personnel needed in this area to complete the fever tick eradication effort.

The TAHC and USDA staff recently participated in producer meetings and in a cross-border strategic planning session with animal health officials from New Mexico, California and Tamaulipas, Nueva Leon, and Coahuila Mexico, to continue to explore possible collaborations for control and surveillance. TAHC with USDA-APHIS-VS, NRCS, and ARS continue to also closely collaborate on inter-agency program activities. Resource and funding challenges however, continue to hamper effective control strategies. Wildlife issues are also an ongoing consideration in South Texas, from both a surveillance and delivery/treatment aspect. Finally, a request to perform a controlled study on the Cuban vaccine GAVAC in the established quarantine zone is has been made by TAHC, pending Department approval.

Committee Business:

One resolution on support of the screwworm eradication program was forwarded to the Committee on Nominations and Resolutions.