Exotic mosquitoes detected in cargo at East Arm Port area
19 March 2003

Peter Whelan¹, Gisela Lamche¹, Craig Prosser² and Hugo Espinoza²
¹Medical Entomology Branch, Health and Community Services
²Australian Quarantine Inspection Service Darwin
21 March 2003.

The Northern Territory Department of Health and Community Services (DHCS) and the Australian Quarantine Inspection Service (AQIS) have released details of the interception of a high-risk importation of exotic Asian tiger mosquitoes in cargo unloaded at the East Arm port facilities in Darwin in the Northern Territory. Eradication and follow up surveillance operations have started and it is expected the importation of these high risk Asian tiger mosquitoes will be eradicated. This has been a great example of the thoroughness of AQIS inspection and reaction procedures in both Western Australia and Darwin, and the continuing local cooperative programs between AQIS and DHCS.

The importation occurred in a large wooden crate of pipes wrapped in clear plastic offloaded from a general cargo vessel, which arrived in Darwin 18/3/03 ex Dampier WA 15/3/03 and ex Singapore 8/3/03. The cargo was in a lower hold that could not be inspected in Dampier, but was flagged in Darwin as posing a possible quarantine risk because of the observation of possible water on the plastic sheeting. An AQIS officer in Darwin detected the importation of live larval mosquitoes in rain filled depressions in the plastic from the just offloaded cargo on the morning 19/3/2003.

The AQIS officers collected all the larvae and pupae in the original water, and submitted them to the Medical Entomology Branch (MEB) of DHCS. Treatment of the plastic wrapping and water on the cargo was undertaken with aerosol cans of knockdown insecticide soon after the detection. This was followed by complete fumigation of the cargo with methyl bromide.

All larvae were identified as Aedes albopictus. The larvae were a mixture of the 4 growth stages and, 3 live and 1 dead pupae, and 5 empty pupal skins. The pupae recovered were bred out under isolation facilities at MEB included a male and female Aedes albopictus. This species is a vector of the arbovirus diseases Dengue and Chikungunya. The detection of live pupae and empty pupal skins indicated there was a high possibility of live adult mosquitoes flying from the hold and live eggs on the plastic wrapping. Stevedores in Darwin reported the presence of live adults flying in the hold. The live adults indicated a high risk for adults to fly onshore and to establish in Darwin. The presence of live adults on arrival in Darwin raised the possibility that live adults may have been present in Dampier and eggs or larvae may have been present on other cargo off-loaded in Dampier.

A coordinated response between DHCS and AQIS was carried out immediately after the detection according to recently established procedures developed by the National Arbovirus and Malaria Advisory Committee. The Commonwealth Health authorities, WA Health and AQIS authorities were notified on the day of detection. The vessel agents in Darwin were requested to close the vessel overnight and the hold of the vessel was fogged internally by a private pest control company using pestigas (pyrethroids, allethrin and pyrethrum). The crates of cargo were covered by a tarpaulin and treated with methyl bromide on the 21/3/2003. The Shire of Roebourne in Dampier undertook fogging of the port area on 19/3/03 and off-loaded cargo was also inspected and fogged. Adult mosquito traps and ovitraps have been installed in Dampier port areas for ongoing surveillance.

The immediate East Arm Port facilities and the surrounding area was fogged by heavy-duty ultra low volume insecticide application of bioresmethyl on the evening of 19/3/03.

Increased surveillance was put in place both inside and outside the 400m-quarantine zone around the port facility. AQIS placed 3 mosquito ovitraps in the port facility in addition to 3 routine ovitraps. DHCS placed 3 additional ovitraps outside the 400m zone in the approach area to the port facilities and 2 in near by premises where cargo from the vessel was
delivered. All ovitraps were monitored weekly for the next 4 weeks for the presence of exotic mosquitoes. Three carbon dioxide baited adult mosquito traps were operated daily by AQIS at the port facilities and DHCS in the adjacent area for the next week. Receptacle inspection and treatment in the area were carried out as a continuing operation.

The increased surveillance in NT and WA failed to detect any further specimens of *Aedes albopictus*, indicating that the importation has been eliminated.

The presence of 4th instar larvae, pupae and pupal skins of *Aedes albopictus* indicated that at least the eggs and possibly the larvae were present on the plastic wrap in Singapore before it embarked to Dampier and Darwin.

This is the 5th risk situation involving *Aedes albopictus* in the Darwin area in the last 3 years and the second risk situation involving clear plastic wrapping serving as a breeding site for exotic *Aedes* mosquitoes in the same period. This detection indicates that clear plastic wrapping of cargo exposed to rain requires increased surveillance at first ports of call of overseas vessels arriving in Australia. It also indicates a need for guidelines on the use of plastic wrapping to prevent future incidents.

The latest detection is an illustration of the excellent inspection procedures by AQIS officers and the well-coordinated and cooperative response between AQIS and DHCS staff. The NT has been free of the *Aedes* vectors of dengue since the late 1950's, despite many instances of importations. This continued absence is due to the vigilance of local quarantine officers and speedy elimination measures. This interception will ensure the NT remains free of dengue vectors and Australia remains free of *Aedes albopictus*.

**Acknowledgments**

Special acknowledgment is given to AQIS staff Mr Olaf Sjerp inspector in Dampier, John Sicari senior inspector in Karratha, Mr Neil Brogan operations manager in Perth and Ms Sui Ying Soong inspector in Darwin, for their vigilance in spotting the incursion and their speedy reaction in organising information and response actions. Ms Sue Harrington of WA Health facilitated response actions in WA. Thanks are also given to Ms Jane Carter, Ms Jennifer Grigg and Ms Leah Stratford of the Medical Entomology Branch, for speedy insecticide fogging operations and the increased surveillance measures. Acknowledgment is also given to Mr Graham Goodwin and other AQIS staff in Darwin for ensuring speedy incursion reaction and follow up surveillance procedures.

**************

**Editorial Comment**

Early detection of the Asian tiger mosquitoes, *Aedes albopictus*, which have the potential to transmit dengue fever and chikungunya disease, has led to a successful eradication operation.

The *Aedes albopictus* were found by AQIS quarantine officers at a Darwin port facility in water on a plastic cargo cover, which was shipped from Singapore in mid March 2003.

This importation follows an outbreak of dengue fever in far north Queensland. Dengue fever in Queensland is spread by the other main type of dengue carrying mosquito, *Aedes aegypti*, which has so far affected more than 400 people in Cairns.

The Department of Health and Community Services (DHCS) medical entomology surveillance has detected 5 incursions of these exotic mosquitoes in Darwin in the past 3 years.

If established in Darwin, the *Aedes albopictus* would enable transmission of dengue from imported cases coming in from nearby countries such as East Timor. The NT remains free of both dengue vectors, and *Aedes albopictus* are not found anywhere in Australia.

*Aedes aegypti* mosquitoes inhabited Darwin during World War II, but were eradicated in the mid 1950s. Quarantine and DHCS inspections and surveillance measures are in place for early
detection and prevention of re-establishment of these mosquitoes. Adult mosquito traps and special egg traps are operated by AQIS and the Medical Entomology Unit of DIICS for ongoing surveillance in port, airport and suburban areas in Darwin, Nhulunbuy and Groote Eylandt.

Aedes albopictus can breed in natural and artificial water filled receptacles, in contrast to Aedes aegypti, whose breeding is confined to artificial receptacles. Aedes albopictus can also spread to temperate areas and could establish away from towns in areas of dense forest. Thus Aedes albopictus, once established in Australia, would be harder to control and eradicate.

This interception has ensured that the NT currently remains free of dengue vectors, and Australia remains free of Aedes albopictus.

**************

NT Tobacco Control Act 2002
Alcohol and Other Drugs Program

After 4 years of being branded the ‘Dirty Ashtray Award’ winner, the NT has this year taken out Australia’s top honour for efforts to control tobacco use.

The Australian Medical Association (AMA) and the Australian Council on Smoking and Health (ACOSH) named the NT the Highest Achiever in the 2003 National Tobacco Scorecard on May 30, just in time for World No Tobacco Day on May 31.

The scorecard is an annual award to promote best practice in tobacco control in Australia.

In announcing the award, AMA and ACOSH commended the NT for its “guts and determination” in making significant changes to major components of the tobacco control legislation and introducing the Tobacco Control Act 2002.

Aspects of the new Act relating to smoke-free dining and shopping came into effect from 1st January. From 31st May
- workplaces are ‘smoke-free’;
- licensed premises must offer equal amenity in all areas; and
- retailers must comply with new restrictions on advertising and display of tobacco products.

In handing down the award, AMA and ACOSH announced the following:

“Coming from the bottom of the pile last year, and hailed as the ‘Most Promising Performer’, it has managed to outperform all other States in 2002/03 and is propelled to the top of this year’s Scorecard.

“Overall, the legislation is a quantum leap for the Northern Territory and the NT Government should be congratulated.”

The Minister for Health and Community Services, Jane Aagaard, said the award recognised the Government’s commitment to reduce levels of smoking and improve the health of Territorians.

“The Tobacco Control Act 2002 is one of the most significant initiatives for health in the Northern Territory during the last decade,” Mrs Aagaard said.

“Through effective collaboration with all stakeholders - including industry associations, retailers, hotels and business - we have been able to implement legislation focused on improving the health and well-being of all Territorians.

“The Act brings us into line with other Australian States and Territories in terms of discouraging people from smoking, reducing exposure to environmental tobacco smoke, and supporting people in their efforts to quit smoking.

“It’s long been recognised by this Government that Territorians deserve the same health protection as other Australians, and we intend to provide that protection.”