

BEEPOCALYPSE NOW

— Jim Fischer

What with the claims that a virus found in U.S. hives suffering from Colony Collapse Disorder came from Australia, we here at *Bee Culture* wondered how any such thing could happen, if it did, in fact, happen at all.

So, we decided to follow the paper trail of a typical bee shipment.

It turned out to be a very short trail. One sheet of paper, to be exact. This discovery did not inspire confidence.

This export certificate is offered as the sole documentation of the “health” of the package or queens shipped from Australia to the U.S. It isn’t quite what we expected in the way of “documentation of the health of bees.” Canada is circulating a draft of a very similar document to be used with their bee exports to the U.S. (see sidebar).

The document flatly states that Australia is free of three kinds of undesirable bees, and five different pests and pathogens. This is true only if Australia is actually looking for these bees and pests.

It says that the bees were produced in Australia, which seems reasonable, but even this is a “declaration” of the owner. Why would the inspector need to waffle? What is behind this convoluted wording?

It claims that the hives were individually inspected within 10 days of export. What kind of “inspection?” It was “visual.”

Yes, they just **looked** at the bees. That’s all. That’s their idea of an “inspection.”

No actual tests for any pathogens or diseases are done and none of the listed diseases and pathogens can be confirmed without lab analyses.

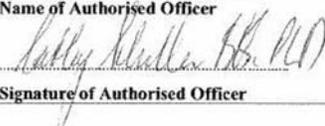
This “certificate” would not have allowed the movement of bees between states in the U.S., so how could it be appropriate for bees shipped across oceans? How can they get away with this?

The short answer is that the World Trade Organization (WTO) exists to *promote trade, not biosecurity*. A better way to put it would be that the WTO exists to promote trade *regardless* of the negative impact on biosecurity. The WTO not only permits shoddy practices like “visual inspections” for things that can’t be detected visually, but it punishes countries who demand more stringent biosecurity controls.

We asked the USDA Animal and Plant Health Inspection Service (APHIS) why

they accepted these “visual inspections,” and how they could be viewed as anything other than a transparent sham. No one in APHIS management was brave enough to face the question themselves, so their public affairs office told us:

“A visual inspection is an additional measure to safeguard the U.S. against foreign bee pests, such as the *Euvarroa sinhai*, *Tropilaelaps clareae*, and *Apis cerana*, among others, which can be detected through these inspections. These safeguards are agreed to and recommended by the World Animal Health Organization (OIE)... The [other] bee pests listed in your

 Australian Government Department of Agriculture, Fisheries and Forestry Australian Quarantine and Inspection Service	Certificate of Health to Accompany Animals or Animal Reproductive Material <i>Sections 2.53, 3.04 and 4.03 of the Export Control (Animals) Order 2004</i>	Certificate Nº 207-000338
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Name and Address of Producer	Date of Export	Flight number
HONEY BEES TO USA		
1. Australia (excluding the Torres Strait Protected Zone) is free from African honeybees (<i>Apis mellifera scutellata</i>), Asian honeybees (<i>Apis cerana</i>), Cape honeybees (<i>Apis mellifera capensis</i>), Asian mite (<i>Tropilaelaps clareae</i>), Varroa mite (<i>V. destructor</i>), tracheal mite (<i>Acarapis woodi</i>), <i>Euvarroa sinhai</i> , and the Thai sacbrood virus.		
2. The honeybees (<i>Apis mellifera</i>) in the shipment were produced in Australia (excluding the Torres Strait Protected Zone) and are the offspring of bees or semen also produced in Australia (based on an official declaration by the owner).		
3. The hives from which the queen bees/honeybees in the shipment were derived were individually inspected by a Federal or State agricultural official within 10 days prior to export.		
4. The signing of this health certificate was done by an authorised AQIS Officer after reviewing documentation provided by the Federal or State agricultural official conducting the pre-export inspection of the hives.		
5. The honeybees in this shipment have been packaged to prevent the escape of any bees or bee pests using mesh with an aperture diameter of not more than 2 mm.		
6. The shipment does not include any brood, honey, comb or pollen.		
7. During visual pre-export inspection of the hives, the following diseases or parasites were present (yes) /not present (no):		
(No) American foulbrood	(No) Half moon virus	
(No) European foulbrood	(No) Chronic bee paralysis	
(No) Small hive beetle (<i>Aethina tumida</i>)	(No) Kashmir bee virus	
(No) Malpighamoeba mellificae	(No) Melanosis	
C. Schuller BSc PhD E. FERRARA BVSc MACVSc Name of Authorised Officer	04/0799 Identity N°	
 Signature of Authorised Officer	25/01/2007 Date of Issue	
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email (American Foulbrood, European Foulbrood, Small Hive Beetle, Malpighameoba mellifica, Half Moon virus, Chronic bee paralysis, Kashmir bee virus, and Melanosis) are all present in the United States. Because these pests are already established here, APHIS does not have the authority to prohibit entry based on their presence."

This sort of statement from APHIS underscores just how utterly clueless they are about diseases and pests of bees. Both *Euvarroa sinhai* and *Tropilaelaps clareae* are roughly the same size as *Varroa*. We beekeepers are well aware that it is nearly impossible to see *Varroa* on bees that are moving around on combs unless the hive is completely loaded, so we rely upon sticky board tests, sugar shakes, and ether rolls as valid ways to detect *Varroa*. So, for the *Euvarroa sinhai*, *Tropilaelaps clareae*, and all the smaller mites, a "visual inspection" is not just inadequate, unless there's a boatload of them in the hive, it is deliberately and criminally negligent.

The claim made by APHIS that "A visual inspection is an additional measure to safeguard the U.S. against foreign bee pests" gives the impression that "visual inspections" are merely one of multiple "measures" being taken to protect U.S. biosecurity. This is incorrect. The "visual inspections" are the **only** activity directly associated with imported bees. Yet Australia claims that they "don't have" this, that, or the other thing. A more honest statement would be "We haven't found any yet." Of course, you won't find what you aren't looking for, as Australia learned the hard way with Small Hive Beetles. A brutally honest statement would be "We haven't found any, and we aren't interested in looking all that hard, for fear of what we might have to admit finding."

Further, the lack of testing on their end of these shipments leaves the Australians defenseless in regard to the accusation that Australia was the source of Israeli Acute Paralysis Virus (IAPV). They simply don't know. That's a shame. Test data from samples of exported bees would have added some hard facts, and perhaps refuted all the speculation. As it is now, there are two U.S. Senators calling for a bee import ban. They'll likely get what they ask for.

Israeli Acute Paralysis Virus (IAPV) is so closely related to Kashmir Bee Virus (KBV) that genetic testing must be used to tell the two apart, and even then, the correct taxonomical classification of the two remains unresolved.

Suffice to say that any actual testing or inspections worthy of the name would have likely revealed the presence of one virus or the other, or confirmed that the shipments were free of both viruses, even if the testing might not have been able to discriminate one from the other.

This brings up another point that APHIS needs to learn. Their position is a parroting of the WTO's trade-at-all-costs view, "**Because these pests [and diseases] are already established here [in the US], APHIS does not have the authority to prohibit entry [of imported bees] based on their presence.**" One of the clear lessons of the CCD work so far is that bee viruses can mutate rapidly. This is a point that should have been obvious for decades. IAPV appears to be a mere mutation of KBV.

Dr. Edward Holmes, one of the CCD researchers claiming to have found IAPV in both US and Australian bees, said:

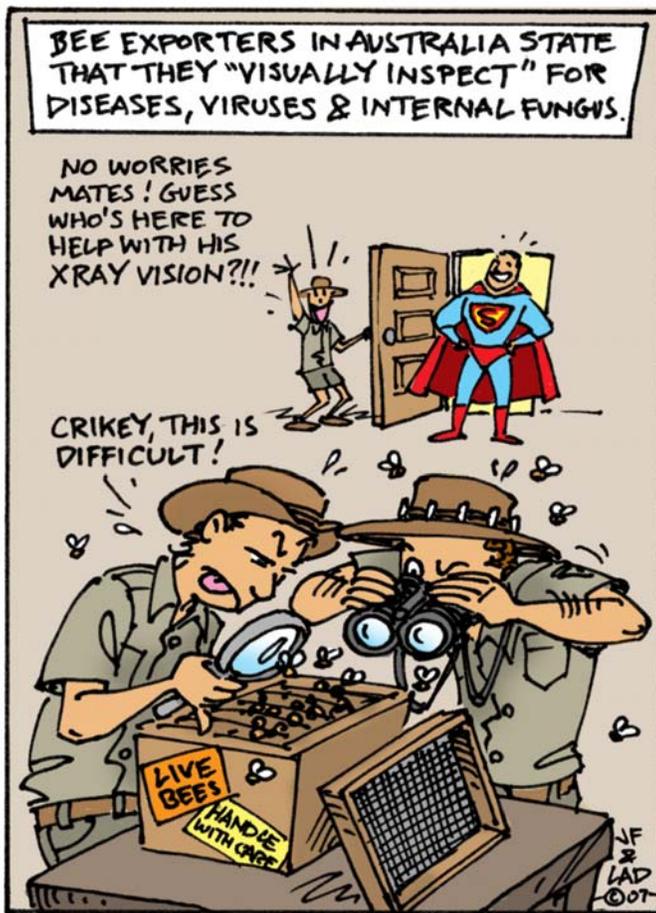
"We know from other viruses, like West Nile... that very small genetic changes, I mean, one amino acid change, can turn a benign virus into a very virulent one... it is quite possible that very small genetic changes... may make this virus behave differently in Israel, Australia, and the USA."

It follows that, in the case of viruses, one can expect viruses to mutate, so anything less than sophisticated tests and consistent testing won't keep up. If any bee viruses exist in the exporting nation, a program of ongoing sampling and testing is the only way to verify that new, perhaps virulent mutations of known viruses are not being exported.

Since very small changes can turn a benign virus into a virulent one, and these changes can appear without warn-

ing in local populations of viruses in different countries, then the basic approach to "certification" under the WTO's so-called "biosanitary" rules is nonsense. One never has "Kashmir Bee Virus," one has a **specific strain** of Kashmir Bee Virus, and any of multiple strains could be more deadly than the others.

Indonesia and Southern Asia are sources of lots of the cargo that arrives at Australian ports, and not surprisingly, a few *Apis cerana* swarms have been found on some of those ships. While AQUIS (the Australian Quarantine and Inspection Service) can be credited with doing a fine job, they certainly can't inspect 100% of the cargo containers. No country can – there's just too much cargo moving in and out, and it never stops.



CANADA'S CERTIFICATE

Abbas Edun, Ontario

Last June Doug McRory, the Ontario Provincial Apiarist, issued a protocol to be followed by persons who wish to ship honey bee queens or package bees to the United States.

They must contact the office of the local Canadian Food Inspection Agency (CFIA) or an Ontario Apiary Inspector to obtain a copy of the Veterinary Health Certificate.

The inspection must be completed by an OAI for each individual shipment and may be done at any time within 10 days of the shipment. The OAI does an inspection for signs of the following diseases or parasites: American and European foulbrood, Chronic bee paralysis, Half-moon disorder, Kashmir bee virus, Melanosis, Tracheal mites (*Acarapis woodi*) and *Varroa destructor*. As most of these diseases cannot be diagnosed visually, the OAI can only state *that they were not seen*.

The U.S. Customs and Border Protection Agriculture Inspector will

not stop the shipment because of any of the above-mentioned diseases, but they have to be reported on the Certificate.

The OAI also certifies that the bees in the shipment originated in Canada and have never been outside of the country.

After the inspection is done, the OAI signs the Certificate and the beekeeper takes it to a CFIA Veterinarian for signature and payment of the fee. The beekeeper then sends a facsimile of the completed certificate either to Dr. Wayne Wehling or Dr. Colin Stewart of the USDA Marketing and Regulatory Programs at the address shown in the Certificate.

The beekeeper then notifies the Customs and Border Protection Agriculture Inspector at the border crossing four hours before arriving there with the shipment that he will be taking bees across. If there are problems at the border, the beekeeper should ask the Inspector to call either Dr. Wehling or Dr. Stewart to ensure that the shipment is acceptable.

The certificate is valid only for queens and packages of honey bees.

Hive bodies, brood, comb, pollen and used beekeeping equipment are prohibited from entering the United States.

So, can they claim that they have detected and eradicated every bee swarm that might have stowed away in cargo? All they can do is claim that they have eradicated every one they found. Given less than 100% inspections it's only a matter of time before foreign bees slip in. But bees from Indo-Asia aren't as much of a potential problem as are their pests and diseases.

Tropilaelaps clareae has jumped from *Apis dorsata* to *Apis florea* to *Apis mellifera*, and, in a few cases *Apis cerana*. Just like *Varroa*, the worst problems seem to be the pests and diseases that move to *Apis mellifera* from other bee species.

The easiest way for pests and diseases of bees to spread is on (or in) live bees themselves.

So, while firm proof may be lacking that IAPV contributes to CCD, and only the sketchiest evidence links Australian exported bees to the problem, we can let the researchers work these issues out and focus on the larger problem – a lack of any inspections worthy of the label. This larger problem is the much bigger threat. It will continue to exist regardless of how the IAPV issue is settled.

These “visual inspections” are a fraud. The Aus-

tralian have no idea what they are shipping along with their bees. If they won't clean up their act, we have to inspect every shipment on the receiving end, using methods that actually detect pests and diseases.

There isn't enough evidence to justify a ban, and I'm not advocating one. But there is enough evidence to demand that people start doing their jobs. It would be nice if the “USDA Animal and Plant Health Inspection Service” realized that it was their job to actually start doing some “animal health inspections” on imported bees.

But right now “bees” are still under the “plant” side of APHIS. That seems to be an obvious part of the problem. So, step one is to get bees out from under the “Plant” division and over in the “Animal” division, where standard practices exist for inspecting live animals beyond merely glancing in their general direction. Step two would be to decide how we are going to inspect shipments ourselves, and what tests we are going to demand of exporters.

But the sham of pretending that anything at all is known about the health of these exported bees has to stop here. These certificates are admissions of guilt, not assurances of health. **BC**

Jim Fischer lives, writes and keeps bees in New York City.