

Six reasons why Canberra will not be volunteering for a trial release

On April Fools' Day, I [tweeted](#) "Breaking: deadly carp herpes virus to be trial-released in Lake Burley Griffin. #StinkingFish" and added a photo of masses of dead floating carp and [this link](#) to the CSIRO, discussing the plans for national release of the cyprinid herpesvirus-3 virus (CyHV-3) into Australia's inland rivers and lakes.

I later pinged the tweet to several national news outlets. None ran it as a one of the traditional mock news stories we often see on April Fools' Day. My attempt to seed the story would have instantly failed the instinctive credibility test that all good news editors have honed over the years.

Canberra's [Lake Burley Griffin](#), like many of our waterways, is infested with plague proportions of "water rabbits": the reviled European carp.

The idea that a herpes virus which would rapidly see perhaps tens of thousands of bloated dead carp floating and putrefying in the national capital's iconic lake after the trial release of the virus was obviously beyond preposterous. It was too unbelievable to rate even as a good April Fool's joke.

And this of course is exactly why I published the tweet. The planned release is no joke. The [CSIRO has been engaged in prolonged research](#) to test the efficacy of CyHV-3 in killing carp and whether it poses any threat to native fish.

But Canberra's civic authorities would be the very last to put their hands up to volunteer for a trial. There would be several compelling reasons for their reluctance.

No trial release planned

First, amazingly, there are no indications yet that carefully evaluated field trials are even being planned. Open, statewide release of the virus is apparently very much [on the table](#) as an

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Written by The Conversation USA

option. The thinking appears to be that it could just be released wherever carp are infesting our waterways. And that's a lot of rivers and lakes.

Why no other country?

Second, no nation or state anywhere in the world has ever purposefully released CyHV-3 into its waterways. If Australia goes ahead as planned, it will be the first nation to do so. Might not others have held off for good reason?

Just asking ...

Mutations?

Third, serious questions arise about how the virus came into the picture. The virus "appeared" in Israel in 1998 and has since spread to 33 known nations via the global commercial trade in ornamental carp (koi). Most of these outbreaks have been confined to koi keepers' ponds where 70-80% of fish have rapidly died. In Japan though, the virus has been found in more than [90 rivers](#).

Outbreaks have also been reported without any known carrier. Here, suspicion arises that water birds may be able to spread the virus.

With no known history of outbreaks before it appeared in Israel, there is concern that an earlier non-fatal strain of the virus may have mutated. In discussion I had with a NSW scientist working closely on this issue, this possibility was downplayed. Herpes viruses are generally considered to be species-specific, with each animal species having its own herpes viruses. Species-specific viruses occasionally jump into new hosts, but these jumps seem to be determined by two factors.

- 1.

Virus jumps really only occur between closely related host species (such as HIV/AIDS virus and Ebola virus jumping from non-human primates into humans).

2.

Viruses are broadly classified as RNA or DNA viruses. DNA viruses (such as CyHV-3) are relatively stable, whereas RNA viruses (such as AIDS, Ebola and influenza viruses) are much more likely to undergo mutations that potentially allow them to jump hosts into a closely related species. Some small and very simple DNA viruses may jump species, but by contrast, CyHV-3 is a very large and complex DNA virus, and these are rarely associated with jumps.

Here, note the qualified language that always must occur in science: “generally considered”, “relatively stable”, “may”, and “rarely associated”.

Two viruses released in Australia to control rabbits, the Calicivirus (an RNA virus) and the virus causing Myxomatosis (a complex DNA virus) have respectively been present in Australia for some 20 and 60 years with no evidence of either jumping into another host during all that time.

The question nonetheless remains as to why CyHV-3 “appeared” only relatively recently and whether related strains might later “appear” in fish other than carp.

Thousands of tonnes of rotting fish

Fourth, we come to the problem of humongous quantities of dead, rotting carp stinking like the gates of hell and degrading our rivers. No one knows with any accuracy how many carp now infest Australia’s waterways since their introduction in the late nineteenth century and the explosion in their numbers that followed flooding in the 1970s. One [recent claim](#) put it as “millions, if not billions”.

The same report stated 140,000 tonnes of carp had been caught one year at just one lock on the Murray and processed into fertiliser. That would mean 384 tonnes each day: 16 tonnes every hour needing a 16-tonne truck delivering them to the [Deniliquin carp fertiliser factory](#) every hour.

But even rampant hyperbole like that fails to diminish the massive problem of feral carp in our

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rivers. [Up to 90%](#) of fish in the Murray-Darling Basin are carp. The voracious, toothless fish ravages river banks looking for worms and insects, causing rivers to choke brown with mud, and greatly degrading the habitat of native species, driving their numbers down. Carp also eat native fish eggs, invertebrates and tadpoles.

When carp die, they often sink and begin to rot before rising to the surface as they putrefy. I visited a friend's koi pond recently and found a well-dead large koi rotting on the surface. I could smell the single fish 30 metres away on a windless day. If the virus is released en masse, thousands upon thousands of carp – many weighing 5kg or more – will die quickly up and downstream from each release point.

When organic matter deluges waterways, the oxygen-carrying capacity of the water can be dramatically reduced, causing mass native fish deaths, as has occurred in recent years in the [Hunter](#) and [Richmond](#) rivers. Heavy rains flush this away, but in low rain and drought periods, the problem can be catastrophic.

Currently there are serious algal blooms in the Murray being caused by high nutrient loads (fertiliser run-off, human and livestock waste). [CSIRO experiments](#) with the virus show that if released when the water temperature is warm, the virus will:

kill up to 95 percent of individuals within 24 hours of symptoms appearing. The virus is most effective in juvenile carp, and is transferred between fish through the water, living without a host for up to four days.

Rotting biomass on this scale is almost certain to cause major problems for both clean-up, and the death of native fish stock, not directly from the virus, but indirectly because of degraded water quality.

The ingenious government plan to clean up this unprecedented mess is to have local community groups do it. Some A\$30 million is being talked about to support this. A current NSW

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Natural Resources Commission [draft discussion document](#) talks of “building community capacity to participate in carp clean-up issues”.

In well-populated centres near large towns, that may be sometimes realistic. But there’s the small problem that carp don’t just live near towns. They are inconsiderate enough to move right through river systems and into side channels, creeks, and billabongs.

This [map](#) shows where carp are known to be in Australia. It would appear likely that [volunteer recording](#) of carp sightings is well advanced on the east coast, but less documented in the vast, remote west of the state, almost certainly because of fewer citizens being engaged in reporting, not because of less carp.

Hundreds if not many thousands of tonnes of fish will die rapidly and rot in poorly inaccessible parts of our rivers. Folksy ideas about local volunteer crews cleaning all this up in a kind of aquatic “clean up Australia” movement sound seriously naïve.

Unanticipated impact on ecosystem?

Fifth, while feral carp are rightly vilified as pests, they have been in our rivers for many decades. Other species have adapted to them with carp fry and young fish eaten by native fish and birds. Adult carp spawn around 300,000 eggs, although a huge number of these perish or are eaten before and after fertilisation.

No modelling has been released on the impact on these native species if up to 90% of a major source of food suddenly dies. Should we be planning a program to reintroduce native species, or do we just sit back and see what happens? Are we potentially leaving an ecosystem gap for some other problem to fill?

Community concerns about water safety

Finally, the virus will of course also get in water catchments supplying towns and cities. The CSIRO has so far been unable to guarantee that virus will be denatured by the levels of chlorination used in town water entering pipes. Warragamba and southern dams have carp and supply water to Sydney’s [Prospect water treatment plant](#), and so we would expect direct

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release of the virus into these supplies.

It needs to be underlined that the risk to humans is [infinitesimally small](#) , arguably non-existent. But the communication challenges of convincing the public of this will make the problems of promoting the beneficial health measures such as water fluoridation and [folate fortification](#) of flour look like a Sunday school picnic. Imagine this: “Let us release a herpes virus into the water supply. It won’t harm anyone. We promise.”

Insiders are expecting Commonwealth approval for the release in 2018, with implementation shortly afterwards. Submissions are now being invited to a [NSW enquiry](#) into feral animal control, including carp.

Simon Chapman has kept ornamental koi for nearly 20 years and is patron of the [Australian Koi Association](#)

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Disclosure

Simon Chapman has kept koi for about 20 years and is Patron of the Australian Koi Association

Read more <http://theconversation.com/should-we-release-the-deadly-carp-virus-into-our-rivers-and-water-supplies-57982>