

# First incidence of koi sleepy disease in Austria

June 16 2015

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Necrotic gill tissue of a diseased koi. Credit: Eva Lewisch/Vetmeduni Vienna

Carp edema virus, also known as koi sleepy disease (CEV/KSD), is a special form of sleepy disease affecting koi and common carp. Long known only in Japan, the disease was recently detected in Europe. An

infection with the virus causes lethargic and sleepy behaviour in the fish. In up to 80 percent of the cases, the infection is fatal. Researchers at the Vetmeduni Vienna, recently identified the disease in Austria, publishing their results in the journal *Transboundary and Emerging Diseases*.

CEV/KSD is an infectious disease that was first reported in Japan in the 1970s. Infected fish typically lie at the bottom of the ponds exhibiting extreme apathy. Typical symptoms include sunken eyes, dermatological changes and swollen gills. Serious cases of the disease affect the gill tissue to such a degree that it also impedes oxygen delivery.

## **Virus spreads across in Europe**

The disease has since been detected in koi in Germany, France, the Netherlands and other European countries. In England the virus was also found common carp. Diagnostic work by Eva Lewisch and her colleagues at the Clinical Division of Fish Medicine at the University of Veterinary Medicine, Vienna, has now also revealed the disease among koi and common carp in Austria.

"Initially we were unable to find a cause for the serious illness in the carps using routine diagnostic tests. Molecular detection revealed that we were looking at an infection caused by the koi sleepy disease virus," says Lewisch.

"The pathogen most likely originates from Asia, where the disease has been known for a long time. Which type of pathogen we are dealing with is not completely clear yet. Electron microscopy indicates that the carp edema virus could be a smallpox-like virus", says Lewisch.

## **Koi sleepy disease present in Austria for longer than believed**



Typical symptoms of the disease include dermatological changes. Credit: Courtesy of Bartolomeo Gorgoglione/Vetmeduni Vienna

An analysis of archived genetic material revealed that koi sleepy disease has been present in Austria since at least 2010. "Every spring, we observe an increased mortality of carp. Koi sleepy disease very likely is playing a role," Lewisch believes.

## **Water temperature and stress a factors**

Lewisch believes that the infection could be widespread among koi and carp stock. Outbreaks are caused by environmental factors such as [water temperature](#) and stress conditions. In Europe, carp live in water with temperatures ranging between 7 and 15 degrees Celsius. In Japan, the typical water temperature of koi ponds is between 15 and 25 degrees Celsius. European carp apparently fall ill at lower temperatures than koi in Asia. "We must consider the possibility that the virus has mutated and that it has adapted to European conditions," says Lewisch.

## Great international interest

"Up until a few years ago, almost nothing was known about the spread of the disease in Europe. There were only scattered reports from national veterinary news sources," Lewisch says. This September, a workshop on the subject of KSD/CEV is planned at the conference of the European Association of Fish Pathologists (EAFP). Experts from all over Europe will discuss the latest developments and debate possible measures for an international fight against the disease.

## Global koi trade promotes spread of virus

"The global koi trade poses a real danger for the spread of viral infections and other diseases," Lewisch points out. "Introduced infections can represent a threat for local stock of common carp. One such example is the koi herpes [virus](#) (KHV). This notifiable disease, the presence of which has been documented since the 1990s, causes immense economic damage to stock of common carp all over the world."

**More information:** Carp Edema Virus/Koi Sleepy Disease: An Emerging Disease in Central-East Europe, by E. Lewisch, B. Gorgoglione, K. Way und M. El-Matbouli was published in *Transboundary and Emerging Diseases*. [onlinelibrary.wiley.com/doi/10... 1111/tbed.12293/epdf](https://onlinelibrary.wiley.com/doi/10.1111/tbed.12293/epdf)

Provided by University of Veterinary Medicine—Vienna

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