

Eroded swimmeret syndrome, a novel disease of the signal crayfish

July 16 2014, by Japo Jussila

Crayfish researchers at the University of Eastern Finland Department of Biology have discovered, together with Swedish colleagues, a new disease plaguing female signal crayfish. As the name suggests, eroded swimmeret syndrome (ESS) destroys the swimmerets of female crayfish, weakens their reproductive ability and can increase the mortality of mother crayfish. In Finland and Sweden, the observed declines and sudden plunges in natural populations of signal crayfish can, to some extent, be explained by eroded swimmeret syndrome.

Symptoms caused by a fungus

For a couple of years now, eroded swimmeret syndrome has been observed in female signal crayfish in both Finland and Sweden. Over the past year, the syndrome has been a target of intense research, and it has been discovered that female signal crayfish weakened by crayfish plague can contract eroded swimmeret syndrome. Molecular biological studies show that the erosion of the swimmerets and the actual symptoms are caused by a fungus of the *Fusarium* genus.

"Female signal crayfish use their swimmerets to deposit fertilised eggs under their tail for hatching. Eroded swimmeret syndrome has been discovered to decrease the number of eggs hatched, and the reproductive ability of female signal crayfish missing several swimmerets can be completely compromised," says researcher Japo Jussila of the University of Eastern Finland.

ESS can explain sudden changes in signal crayfish populations

"Eroded swimmeret syndrome is another sad turn in the introduction of a non-native crayfish species to Europe and the Nordic countries. The observed declines in natural signal crayfish populations and their weak ability to recover from these declines can be, to some extent, caused by eroded swimmeret syndrome," Jussila says.

In Finland, eroded swimmeret syndrome has been found in many of the country's big lakes and, in Sweden, the syndrome is widespread in signal crayfish populations experiencing sudden declines. The study was a joint effort between the University of Eastern Finland, the South Karelia Fisheries Centre, the Swedish University of Agricultural Sciences, and Ekoll Ab.

In Finland, a choice has been made to introduce signal crayfish to the southern parts of the country only, but unauthorised introductions continue to take place elsewhere in the country, too. It is feared that signal crayfish and the crayfish plague it carries spreads in healthy signal crayfish populations and noble crayfish populations.

Provided by University of Eastern Finland

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