



the
CRAYFISH TALE
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**SIGNAL CRAYFISH in EUROPE –
FRIEND OR FOE?**

The phone rang persistently in the middle of the night. My wife and I were at first alarmed that a phone call at 2.30 AM could bode alarming family news. What could have happened? Family problems? Emergency?

No. It was a young, wide-eyed and maybe bushy tailed, crayfish lover far away in Poland who wanted to buy some crayfish traps. Apparently not wide-eyed enough to realize that our world is divided into several time zones. And that while someone in the capital of Poland may be bushy tailed, we in Arizona are at the same time getting our Z's. Or at least were. We told him that sending an email would be more human and less obtrusive.

The next morning I started wondering about what crayfish he wanted to catch in Poland. To my surprise, the Internet informed me that a lot of today's crayfish habitats in Poland, as well as in other

places in Europe, are of the American Signal crayfish variety. Why are crayfish in Poland of the same variety as crayfish native to states like Utah, California, Oregon and Washington?

When the catastrophic crayfish plague started spreading its tentacles all over the European crayfish habitat, its native crayfish, *Astacus astacus*, took a terrible beating. The plague reportedly started in Italy where an American freighter had discarded water ballast including some crayfish and the scourge was on. After its original introduction in Italy in 1860, it spread through France and Germany and was discovered in [Sweden](#) in 1907, reportedly through introductions from Finland, which also was heavily affected by the plague. In England, where the interest in crayfish was only luke warm, the plague did not arrive until 1981 through introduction of Signal crayfish in the restaurant business. Strangely, it was not until 1930 that the source and type of fungal disease was identified and finally attacked scientifically.

(The picture below shows a sample of the signal crayfish - ***Pacifastacus leniusculus*** - Notice the light 'signal' spot in the hinge of the claws.)



The crayfish plague, a fungus disease, has wiped out large populations of the native *Astacus astacus*, also referred to as the Noble crayfish. After losing some of their best crayfish populations, Swedes started looking for and found a replacement crayfish, and in the 1960s and 70s began transplanting the American Signal crayfish into numerous of its lakes. However, ironically, although the Signal crayfish is more resistant to the plague than *Astacus*, it happens to also be a carrier of the plague. Most remaining lakes with native *Astacus* soon also succumbed to the plague. Today they are becoming rare in most parts of Europe. Efforts to reintroduce the original European crayfish have been unsuccessful because of subsequent large implantations of Signal crayfish, most of them done on private initiative.

Strangely, many countries have some surviving lakes with both the native as well as the imported California species. In one report from Finland, both species are represented in volume in one and the same lake and have been so for over 30 years. Apparently, the susceptibility and immunity to the plague varies considerably. The Swedish crayfish industry, which was drastically reduced in the years after 1907, has finally recovered thanks to the Signal crayfish. Now many lakes are producing record harvests of crayfish in excess of the old times around the turn of the previous century.

But what is the Signal crayfish doing in Poland? Well, believe it or not, when the crayfish loving Poles found their supply of the native *Astacus* diminished in their lakes, they started looking to Sweden for

help. Realizing that the Swedish crayfish industry was recovering after transplants in the 60s and 70s, they started importing Signal crayfish. And from where? No, not from California. From Sweden.

There are some interesting and encouraging reports about the native *Astacus* species. Apparently, in some cases, especially reported from Finland, some of these natives have acquired a certain amount of immunity to the dreaded plague. Several lakes in Finland now have surviving Noble crayfish, and even down in former Czechoslovakia are reports of lakes with surviving native crayfish.

But what is so special about the native Noble crayfish? For many, especially biologists, any loss of species is a catastrophe which unfortunately is repeated all over our world. But for a simpleton like me, the concern is more in an egotistical vein. The Noble crayfish is reputed to have the best tasting meat of all crayfish species. However, the replacement, in the form of the Signal crayfish, is a close second in both taste and size. Were it not for the tell-tale light spot in the claw hinge, it would be difficult to tell the two species apart. And personally, down here in Arizona, far from the Signal crayfish habitat, I enjoy a species called *Orconectes virilis* - at least that's what the experts call it. The *Virilis* is very similar to the Signal and to the native European crayfish, with large claws and very tasty meat. Under the assumption that the *Virilis* variety also is relatively resistant to the crayfish plague, I anticipate and certainly hope that these crayfish will remain in Arizona waters for a long time.

CORNEA TRANSPLANT

The procedure to improve my eyesight by a cornea transplant has been performed. A small piece of donated cornea was attached to the inside of my malfunctioning cornea. The result is still in the making and although vision is slowly improving, I have to be prepared for a recovery period of two more months. So far, so good.

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