

## Aquatic Nuisance Species Alert.

### European Killer Shrimp – A Serious Threat to Aquatic Invertebrate Species in the Eastern United States.

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**Image:** Killer Shrimp. URL: <http://es.treknature.com/gallery/Europe/Poland/photo145296.htm>

Killer Shrimp (*Dikerogammarus villosus* Sowinsky) is a freshwater amphipod from eastern Europe. Over the past 10 years, this crustacean has invaded central and western Europe where it is a serious threat to freshwater shrimp, other aquatic invertebrates, and small fish. The climate in its native range is classified under the Köppen World Classification System as **cfa** (warm temperature; fully humid; hot summers). This matches exactly with the climate of the eastern United States.

#### Introduction.

From its original range in the lower courses of large rivers (particularly the Danube River system) in the Black Sea and Caspian Sea Drainage Basins (the [Ponto-Caspian Region of eastern Europe](#)), the Killer Shrimp has invaded central and western Europe. It was recently discovered for the first time in the United Kingdom in [Graffham Water Reservoir](#) in [Cambridgeshire](#), England. It causes significant ecological disruptions, reduced biodiversity, and has led to local extinction of some aquatic species in affected areas. The common name of this species is a reference to its aggressive behavior toward native invertebrate species.

#### Biology and Behavior.

The Killer Shrimp is not actually a shrimp, but rather a shrimp-like crustacean known as an amphipod. In the areas where it has invaded across Europe, it lives in a wide range of habitats, including fresh and brackish waters, in lake, rivers, and canals. It is well adapted to fluctuations in temperature, salinity, and oxygen levels. It is fast growing, and reaches sexual maturity in 4 to 8 weeks. It is particularly vicious and destructive. It kills prey by biting and maiming them, unselectively. In freshwater systems in the Netherlands, it is rapidly eliminating native European amphipods such as [Gammarus duebeni](#), which occurs naturally in salt marshes, estuaries, and freshwaters throughout northwestern Europe. Following its invasion of the River Rhine in western Europe, *D. villosus* became the dominant species on stone substrates and outcompeted other species include [Gammarus tigrinus](#) (another invasive species that is native to the Atlantic Coast of North America).

### **Distinguishing Characteristics.**

Killer Shrimp has a body length of 3-30 mm. It is striped or uniform in coloration. It has large mandibles that permit it to shred other aquatic invertebrates.

### **Distribution in North America.**

*Killer Shrimp is not yet known to occur in North America.* However, it is clear that it would cause serious environmental impacts if it should be introduced into Canada, the United States, or Mexico.

### **Potential Pathways of Introduction into the United States.**

Killer Shrimp could be introduced into the United States as a contaminant of aquatic products, or in the ballast water of ships.

### **Prevention Strategies in the United States.**

Precautions should be taken now to prevent the introduction and establishment of this species in the United States. This includes control of ballast water in trans-oceanic ships arriving from Europe. This could include exchange of ballast water prior to arriving in U.S. ports, and treatment and/or filtering of ballast water before it is discharged in American waters.

### **Strategies for Early Detection and Rapid Response.**

ANS Volunteers in Louisiana should be on the lookout for Killer Shrimp and other shrimp-like crustaceans. If it is confirmed, associated angling equipment, boats, and trailers, should be thoroughly cleaned to prevent additional spread.

### **Reporting of Suspected New Aquatic Invaders in Louisiana.**

Suspected new aquatic invaders in the waters of Louisiana should be reported to the Louisiana Department of Wildlife and Fisheries in Baton Rouge, LA (225-765-2949).

### **Selective References.**

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