Noble Crayfish – Astacus astacus

Characteristics

The noble crayfish (also called European crayfish), like the signal crayfish and the narrow clawed crayfish, is one of the main crayfish species in Austria. All three species have two pairs of knotted swellings on their carapace. The lower sides of noble crayfish pincers are red. At the fixed finger of its pincers, the adult male has two protuberances connected by an emargination. Whereas the narrow clawed crayfish has a particularly strong spination on the neck, and the signal crayfish, turquoise-white spots around the pincer joints.

Lifestyle

Crayfish lead a hidden life as they are nocturnal animals. They only leave their hiding places at dawn to look for food. Their menu ranges from parts of dead plants, algae, insects and worms to dead mollusks and fish. Thus, they fulfill the important function of health wardens in their home waters. Crayfish are the largest indigenous invertebrates – males can reach a length of 17 cm. A strong lime carapace envelops the body and not only protects the inner organs, but supports them. The head with its sharp eyes has two pairs of antennas for touch and smell, with at their base, the equilibrium organs. Like all "higher" crab types, they possess 10 pairs of limbs, with the first pair in the shape of strong pincers used for catching food and for protection. The remaining limbs are used for crawling and swimming or fulfill a function during reproduction. When they feel threatened, they pull in their tail and "shoot" backwards.

Crayfish are among the longest living inhabitants of our watercourses. Some species can live as long as 15 years. They inhabit caverns and their immediate surroundings, and stick to their habitat. They mate in autumn, when the temperature of the water drops. The female is seized by the pincers and turned on its back, which can sometimes result in a wild skirmish!

Females are thoughtful mothers and care intensively for their brood. The fertilized eggs attached under the tail are carried around until spring. During the winter, in a frost-proof hiding place in deep water, the female constantly supplies the eggs with fresh oxygen-rich water and cleans them regularly to avoid any development of fungi. The young crayfish larvae hatch in spring and remain 2 to 3 weeks under the protective tail of their mother before they leave and become independent.

Crayfish shed their skin several times a year until they reach maturity, and then only once every year. The soft, freshly molted crayfish are also called butter crabs. The new carapace takes about 8 days to harden. During that time, they are easy prey for their enemies. During the hardening process, the so-called crab stones (gastroliths) serve as lime reserves although they can only provide 10% of the amounts of lime needed. This is why crayfish must absorb large amounts of calcium from the water and are unable to survive in lime deficient waters. From this perspective, the presence of crayfish in the National Park is indeed something special!

Threat and protection status

Hydraulic constructions and pollution, but mostly the crayfish plague have drastically reduced the crayfish population and confined them mostly to small, isolated locations. The agent causing this illness, that is particularly deadly for European crayfish, is a filamentous fungus, which appeared for the first time in Italy in 1860 and, within a few decades, spread through the whole of Central Europe. Within a short time, the plague can eradicate the crayfish population of entire watercourses and the process is accelerated through the intensive trade in fish and crabs. The introduction of North American species, like the signal and the spinycheek crayfish, into European rivers, was originally supposed to replace those species of crayfish that died from the plague. However, although they are immune against the plague, they carry the virus and can therefore transmit the illness. The plague can already been spread through contaminated water, but also by snails, mussels, fish, aquatic plants, wet

fishing nets and even swimming costumes. Up to now, there have been consistently periods of mass mortality. First the fungus colonizes the outside of the carapace, then spreads across it before expanding into the inner organs. Death occurs within a few days. With the invasion of foreign crayfish, the indigenous types are being pushed out of their original habitats (competing for food and reproduction rate). They constitute the principal threat for the European crayfish.

Dissemination and habitat

Out of the six current crayfish species, the noble crayfish and the stone crayfish were originally native in Lower Austria. They probably populated most watercourses more or less densely. Today the largest incidence of noble crayfish is in the northern Waldviertel area, probably its main refuge in the region. Considering its former wide dissemination, the endangerment of the noble crayfish is particularly apparent. At present, the noble crayfish is registered as "highly endangered" in the Austrian Red List and as "in danger of extinction" in the Lower Austrian Red List. It is also protected by European treaties, such as the Bern Convention (annex III) and the Fauna-Flora-Habitat Directive (annex V).

Normally, it colonises the warmer rivers and lakes in low areas of up to 600 m above sea level. A high diversity in structures (stones, dead wood or plants) and the possibility to dig holes in clayey bank slopes facilitate the settlement of noble crayfish. The stone crayfish on the contrary prefers cooler headwaters of up to 1200 m above sea level.