

SUMMARY

Active protection of the European pond turtle – efficacious technique or experiment?

Many populations of turtles (e.g. the European pond turtle *Emys orbicularis* in Poland) and tortoises are endangered. Thus, many protection programs of the animals, including highly manipulative ones (e.g. headstarting), are currently being carried out. Headstarting is a species protection technique that involves raising turtle hatchlings in captivity to an age of a few months up to several years, and then releasing them into a natural habitat. Usually the objective of this procedure is to grow hatchlings to a size at which they are less vulnerable to predators. However, recent analyses of headstarting programs suggest that they are fairly inefficient as tool to increase population size.

Analysis suggests that headstarting programs can increase population size only if a large percentage of hatchlings is headstarted, so with large populations it is virtually impossible. Additionally, if adult survivorship is decreased (even by only 1%), such method will be inefficient. Thus, if the reasons for population decline are not eliminated, a headstarting program cannot save populations from extinction. The real efficiency of such programs, however, also depends e.g. on the length of the headstarting program and the long-term survival rates of wild and headstarted individuals (factors that are currently not known). Headstarting programs should, at this point, still be considered experimental. Other possible to use techniques of protection of the European pond turtle are also ineffective (clutch protection), or data about ecology of the species are insufficient to use them (restitutions, building of artificial nesting places).

Headstarting is useful only when used in tandem with a strategy that will reduce mortality of adult turtles. I recommend the initiation of headstarting program of the European pond turtle only when a population is in real danger of extinction, and only if it is impossible to reduce adult and subadult mortality. As morphological and genetic variations of the turtle in Europe are high, and only few information in the subjects from Poland area are available, translocations of individuals between populations should be present forbidden.