

## **Effectiveness of Nest Protection and Artificial Egg Incubation for Turtles in Ontario**

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The overwhelming loss of wild turtle nests may be partially remedied by nest protection techniques and artificial incubation of eggs. Along river and lake sites in Ontario the threat of flooding, poaching, unfenced cattle, mammalian and invertebrate depredation, ATV use and other similar disturbances on turtle nests has been increasing. In concert with protection of adults and habitat, egg and juvenile protection plays a necessary role in species recovery. Research along the Thames and Sydenham Rivers, within Rondeau Provincial Park and along the Long Point National Wildlife Area has shown a steady decline of turtle nest success. In fact, a 100% loss of turtle nests is a common occurrence without intervention at these locations. These areas maintain some of the most important and extensive tracts of remaining habitat for turtles in Canada, yet may not maintain reproductively successful populations.

In Ontario, nest protection with wire caging has long been used as a successful barrier to mammalian depredation of turtle eggs. This technique has been continually adapted to meet changing environments, predator adaptation and human poaching concerns. Though seemingly straight forward, this conservation technique can be ineffective in some situations and extremely problematic or dangerous for the species being protected. A review of these issues, along with cage design and methodology will be discussed.

While attempts have been made to protect turtle nests at the site of oviposition, many nests are facing imminent loss due to a number of natural and human-related factors. Artificial incubation provides an alternative when nest caging is less effective. Artificial egg incubation is still in its infancy, as many variables are yet unknown. However, preliminary studies are showing the benefit of this conservation tool. Increasingly, recent innovations have improved incubation methods, providing more effective and reliable results. Factors such as humidity and temperature control can be further developed to include night time temperature drops, fail-safe electronic thermostats and overall control of environmental conditions. Ex-situ artificial incubation methods for the spiny softshell have resulted in far higher nest success than in-situ nest protection, thus ensuring hundreds of turtles at risk are released into the environment each season.