

Benefits of Tonic Immobility in Birds

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Over the last few years, I have volunteered to help band Tricolored Blackbirds (*Agelaius tricolor*) with Dr. Robert Meese, Emilie Graves, and Jennifer Brown. They taught me how to hold the bird after taking it out of the trap. The most common way to hold birds for banding is in the bander's grip (Figure 1). Holding the bird on its back, belly up, invariably calms the bird, and makes it easy to band. I wondered, why is this?

Tonic immobility is a temporary state of paralysis that animals enter, also called animal hypnosis. Tonic immobility can be initiated in animals by restraining or covering the animal for a short time and exerting light pressure on its body, mimicking the grip of a predator. Tonic immobility appears to be an involuntary survival technique of "playing dead," and serves as another option to fight-or-flight in a dangerous situation. For example, Sargeant and Eberhardt (1975) showed that dozens of ducks attacked and grabbed by foxes all went into tonic immobility. Subsequently, the foxes frequently dropped or cached the living ducks while still immobile, after which many ducks managed to escape. Young chickens were tonically immobilized by holding them down, and after resisting for a few seconds they entered a catatonic state for an average of 5-10 minutes, but some for over an hour (Gallup and Rager 1996).

Many fish and other species can become tonically immobilized, including at least 16 species of sharks, several ray species (Henningsen 1994), and the rhesus macaque (*Macaca mulatta*; Holcombe et al. 1979). Researchers have discovered that when a shark is flipped over onto its back and is held there, it stops moving, its dorsal fin straightens, and its breathing and muscle contractions become steady and relaxed (Soares 2014).

Bird banders may not intend to tonically immobilize the bird they are banding but banding using a bander's grip restrains and covers a bird for a short time and exerts light pressure on its body, which triggers tonic immobility. This immobility benefits the bander by making the banding job easier and benefits the bird by reducing the potential that it may become injured during banding. Thus, tonic immobility is significant and helpful to banding and in protecting banded birds.

LITERATURE CITED

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Figure 1. Female Tricolored Blackbird being held using a bander's grip.

Photo by Layla Airola