portabletelemetry Readme

We assessed movement patterns of suckers using PIT (Passive Integrated Transponder) tags and a combination of a mobile antenna and stationary antenna array. Our methods are described in detail by Booth et al. (2013; 2014). Briefly, fish were captured and uniquely numbered, 134.2 khz half-duplex PIT tags were implanted in the body cavity of the fish. Tags were coded with the year of tagging and an individual id. Tagged fish were released in the same location where they were captured. We tagged 450 C. insignis within a 1.8 km reach of the West Fork Gila River from 2008 to 2010 (May to July). We mapped the tagging reach, characterized habitat (e.g., pools, riffles, runs) and substrate types, and created a GIS map in Manifold 8.0 (Manifold Software Limited, Hong Kong).

Implanted PIT tags were detected using either stationary antennas that continuously recorded the passage of tagged fish past fixed points in the stream, or a portable antenna that was moved within the stream to scan habitats for tagged fish. We collected weekly position data using the portable antenna within a 2-4 km reach during May through July 2008-2010. In 2009 and 2010, we installed eight continuously recording stationary PIT antennas to detail “habitat- scale” fish movements (Fig. 2). We collected 65 days of data during 2009 and 28 days during 2010. An estimated 25-50% of the C. insignis population within the full 1.8 km study reach contained PIT tags during the study period; in the stationary antenna reach (Fig. 2), the tagged population ranged between 16 to 42 (2009) and 8 to 25 (2010) individuals, though the individuals composing the population changed over time (Booth et al. 2013).

Column headers

Date: Date of observation

Tag id: Programmable tags were coded with a 16 digit code, e g., 0000\_0000000020080019—the last 8 digits making up four digit year i.e., 2008 and the individual id for each fish i.e., 0019.

Site: internal site code for capture locations, GPS longitude and latitude provided

Method: 1) Antenna--detection via portable telemetry survey over a 2-4 km reach 2) hoop—physical capture via hoop net set in pools that were typical refuge sites for fish and 3) electrofishing—fish were captured during annual or biannual electrofishing surveys

Total length: length from tip of snout to end of tail at time of capture, in mm

Standard length: length from tip of snout to end of caudal peduncle at time of capture, in mm

Weight: fish were weighed on a portable electronic balance (<150 g) or a 1kg Pesola spring scale

Notes: any relevant information at time of capture