

Unpublished Note, 1998

Use of a Prototype Tunnel by Painted Turtles, *Chrysemys picta*

Scott D. Jackson and Michael N. Marchand

Department of Natural Resources Conservation
University of Massachusetts, Amherst

Turtles are generally characterized by low reproductive potential, late age of first reproduction and relatively high adult survival rates. As such they are vulnerable to the affects of roads and highways as movement barriers and sources of additive mortality. Although underpasses systems have been successfully used for various species of amphibians (Langton 1979, Jackson 1996), there have been no studies as to the effectiveness of tunnels for mitigating the impacts of roads and highways on turtles.

We tested the response of painted turtles to a simulated road underpass system. A 2' by 2' by 20' wooden tunnel was constructed and placed in an area to intercept female painted turtles as they moved from their wetland habitat to an upland nesting area in Western Massachusetts. The tunnel was not placed in a road or buried in the ground to fully simulate actual underpass conditions, but was simply a test of the turtles' reaction to the tunnel and associated drift fences. Approximately 40 m drift fences constructed of filter fabric were position on either side of the tunnel entrances to guide animals to the tunnels. Observers stationed in a deer stand above the tunnel recorded the number of turtles successfully reaching the tunnel, number of turtles successfully passing through the tunnel, and amount of time each turtle took to pass through the tunnel.

During the period from June 4 through June 25, 1997, turtles were observed as they encountered the drift fences and tunnel on 35 occasions. Although the turtles appeared to be unaffected by the observer in the deer stand, on five occasions turtles were disturbed by the presence of people on the ground and returned to the wetland. Of the encounters unaffected by people, turtles successfully reached the tunnel in 20 of the 30 encounters. In the other third of occurrences, the turtle appeared to be disturbed by convolutions in the drift fence and returned to the wetland. Of the 20 turtles that reached the tunnel, all successfully passed through. The mean time to traverse the tunnel was 113 seconds (median 120; range 60-197).

Results of this study indicate that underpasses similar in dimensions to that used in this trial may be appropriate for use by eastern painted turtles. However, careful attention needs to be paid to the design of drift fences and tunnel entrances.

Literature Cited

- Jackson, S.D. 1996. Underpass systems for amphibians. 4 pp. *In* G.L. Evink, P. Garrett, D. Zeigler and J. Berry (eds.) Trends in Addressing Transportation Related Wildlife Mortality, proceedings of the transportation related wildlife mortality seminar. State of Florida Department of Transportation, Tallahassee, FL. FL-ER-58-96.
- Langton, T.E.S. 1989. Amphibians and Roads, proceedings of the toad tunnel conference. ACO Polymer Products, Shefford, England. 202 pp.