



Wildlife Field Notes

Evaluating the Potential for Illegal Desert Tortoise Collection

David D. Grandmaison and Vince Frary

Introduction

Due to their slow nature, tortoises may seem rather sedentary, possibly limiting themselves to smaller home ranges and cutting themselves off from other tortoise populations by natural landscape features. The truth is, some tortoises travel long distances in search of quality habitats, food resources, and mates.

These movements can contribute to the ultimate survival of the species by fostering gene flow between populations and allowing individuals to colonize unoccupied habitats. However, in order to reach these new habitats, tortoises oftentimes must contend with an ever-expanding network of roadways. Not only does this introduce the possibility of vehicular collisions but it also increases the opportunity for human interaction. This increased interaction may result in the illegal collection of tortoises. Illegal collection of any animal may affect the stability of the local population and, depending on the degree of collection, may imperil the future of the species as a whole.

Researchers with the Wildlife Contracts Branch recently set out to better understand the potential for the illegal collection of tortoises in Southern Arizona. By using a combination of traditional scientific methods and an often-used law enforcement technique to apprehend wildlife poachers, they were better able to evaluate the extent of the illegal collection of tortoises in the state.



A desert tortoise attempts to cross a non-maintained gravel road. Slow-moving and conspicuous, the species can be an easy target for illegal collection.

Methods

Wildlife Contracts Branch researchers monitored the outcome of human-tortoise interactions at 50 locations along roadways throughout the species' range. Roadways were chosen based on their proximity to known tortoise habitats. The roads were then classified into three categories: 2-lane paved roads, county maintained gravel roads, and non-maintained gravel roads.

As a vehicle approached, researchers placed a live captive tortoise decoy alongside the roadway, in view of a passing motorist but well out of harm's way. Researchers then recorded the motorist's response to seeing the tortoise along the road. Motorist response was classified as 1) No re-

action and the vehicle passed; 2) Motorist behavior indicated the decoy was detected (i.e. vehicle slowed down, motorist left the vehicle and moved the tortoise, etc.); 3) Motorist collected the decoy. If the tortoise decoy was collected, the vehicle and its occupants were immediately detained by a law



Officer-motorist interviews conducted during this study suggest that increased public education may reduce incidents of illegal collection of wildlife.

enforcement officer who was also part of the research team. The officer retrieved the decoy tortoise, advised the motorist of the Arizona state law protecting the tortoise and issued a verbal warning. Additionally, the officer presented information about legal adoption of captive tortoises.

Results

Researchers created 561 opportunities for motorists to interact with a live tortoise decoy. More than 19% resulted in a detection of the decoy by a motorist. Of the 108 detection episodes, almost 40% slowed their vehicle, 11% stopped and observed the decoy before driving away, and 42% stopped their vehicle to move the tortoise off the roadway. Finally, 7% of all decoy detections resulted in the illegal collection of the live tortoise.

Upon retrieving the tortoise, law enforcement officers asked motorists their motivation for collecting the decoy. In all cases, motorists expressed ignorance regarding the state's wildlife collection laws. Several

motorists admitted they intended to keep the decoy as a pet. Others explained that they were removing the tortoise from a dangerous situation and intended to contact a wildlife professional.

Researchers then created a suite of probabilistic models to identify parameters that would increase the probability of tortoise detection and collection. Models were then ranked using an Akaike's Information Criterion (AIC) to identify the best fit.

Management Implications

Data from this study suggests that of the three road types examined, tortoise detection was greatest along maintained gravel roads. Vehicle speeds along these roadways are slower than those of paved roads. Meanwhile visibility along maintained gravel roads is generally greater than along non-maintained roadways. The combination of slower vehicle speeds and better roadside visibility greatly increased the probability of a motorist detecting the tortoise.

Although results from this study indicate that only about 7% of motorists who detect a wild tortoise will actually collect it, evidence suggests that even these small numbers can substantially affect local tortoise populations. With roadways constantly expanding into tortoise territory, the opportunities for illegal tortoise poaching may only increase.

Officer-motorist interviews from this study also demonstrate another opportunity for conservation efforts. An increased educational effort on the part of the Department may assist in reducing the incidents of illegal collection. Identifying "hot spots" of tortoise activity and designing wildlife passages along roadways might be another solution to alleviate tortoise collection and roadside mortality. Implementing a combination of these strategies may be the best way to reduce pressure on tortoise populations and ensure the future of this Arizona native.