Sonoran Desert Tortoise Movements in Scottsdale’s McDowell Sonoran Preserve

1,2Rob Hallagan and 1Jessie Dwyer
1McDowell Sonoran Conservancy, Scottsdale, AZ 85260; 2tortoise@mcdowellsonoran.org

INTRODUCTION

- The Sonoran Desert tortoise (Gopherus morafkai) is a Tier 1A Species of Greatest Conservation Need found here in the McDowell Sonoran Preserve.
- This species is under increasing pressure from climate change, human activities, and habitat degradation, which may affect their population numbers.
- Through generous support from the Arizona Game & Fish Heritage Fund, the McDowell Sonoran Conservancy is studying the local tortoise population for the first time.
- The 3-year study will give us a better understanding of tortoise movements and activity patterns in this area, as well as factors affecting the population.

OBJECTIVES AND PREDICTIONS

Goal 1: Track movements of Sonoran desert tortoises
- By tracking desert tortoise movements, we can gain a better understanding of how tortoises are using the Preserve and surrounding areas, gauge potential effects of development, and determine if recreation affects their movements. These data will help the Conservancy and the City of Scottsdale make better management decisions to protect the tortoises and the Preserve ecosystem.

Goal 2: Engage the community
- Long-term protection of regional connectivity requires the support of an educated community to help accomplish conservation and research goals and to advocate for science-based management of wildlife. By engaging nearby residents and other members of the public, we can raise awareness of wildlife in the area, as well as threats and opportunities facing those species.

Goal 3: Wildlife Corridors/Habitat Conservation
- As a long-lived species with slow recruitment, tortoises are more susceptible to loss from urban and environmental pressures. Relatively little is known about how urbanization affects tortoises and, hence, what mitigation measures might be most effective.

METHODS

- The study area for this research project is Scottsdale’s McDowell Sonoran Preserve (Fig. 1).

RESULTS

- We found that daily tortoise movement and distances travelled vary greatly by the individual. Some tortoises stay deep in their burrows and exhibit very little movement. Some exhibit a relatively high number of movements (Table 1).

<table>
<thead>
<tr>
<th>Tortoise</th>
<th>Start</th>
<th>End</th>
<th>Distance</th>
<th>Duration</th>
<th>Movements</th>
<th>Steps</th>
<th>Speed</th>
</tr>
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<tbody>
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<td>0:00</td>
<td>0</td>
<td>0</td>
<td>50</td>
<td>750</td>
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<tr>
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<td>100</td>
<td>1500</td>
<td>0.01</td>
</tr>
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<td>0:00</td>
<td>0</td>
<td>0</td>
<td>150</td>
<td>2250</td>
<td>0.01</td>
</tr>
</tbody>
</table>

- We also tested motion-triggered trail cameras to detect tortoise activity at two den sites. Through this initiative, we have documented tortoise movement, feeding, and courtship behavior. This initiative has highlighted the importance of Sonoran desert tortoises to the desert ecosystem by capturing photo evidence of other species using the burrows they create (Fig 3). We intend to use these photos as an opportunity to educate and engage the community.

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