The status of an introduced species (*Phrynosoma cornutum*) on barrier islands in South Carolina

*By Courtney Heuring*

While walking the beachfront near Charleston, South Carolina, visitors may notice an unfamiliar creature—the Texas horned lizard (*Phrynosoma cornutum*). The species is thought to have been introduced to South Carolina barrier islands during the early 1900’s by soldiers traveling from Texas to the military bases on the South Carolina coast, but exact details of the introduction are unknown. In the 70+ years since the introduction, populations of the have persisted and are now found in several areas along the coast of South Carolina.

As these introduced populations had not been studied, the purpose of my study was to locate *P. cornutum* populations on three barrier islands and compare them to the native populations in the western United States. Specifically, I used morphology, diet, and genetic markers to determine divergence from western *P. cornutum* populations and among the South Carolina populations.

During the summers of 2014 and 2015, I performed my field work and caught a total of 123 individuals. I found that lizard body shape and size significantly varied across the introduced populations. Compared to lizards in the native range, South Carolina lizards generally followed the latitudinal trend for body size.

My diet analyses revealed that the South Carolina *P. cornutum* diet is composed of mostly

Continued on page 3
National Board of Directors

President
Tim Tristan
exoticvet@yahoo.com

Secretary
Leslie Nossaman
poppies14@comcast.net

Member Services
Bradley Lawrence
cobraguy71@gmail.com

President-Elect
Jared Fuller
jfuller@unr.edu

Treasurer
Tanya Phillips
tanya@austin.rr.com

Director At Large
This position is open.

Colorado Contact
Danny Martin
Natural Resource Ecology Lab
Colorado State University
1499 Campus Delivery
Fort Collins CO 80523
dannym77@lamar.colostate.edu

New Mexico Contact
Tom McCain
PO Box 53095
Albuquerque NM 87112
tom@httom.com

Texas Contact
Bill Brooks
108 Cactus Cove
Paige TX 78659
512-581-0377
b.brooks@utexas.edu

Nevada Contact
Jared A. Fuller
jfuller@unr.edu

Phyrnosomatics
Copy Editor
Leslie Nossaman
poppies14@comcast.net

Phyrnosomatics
Design Editor
Fannie Messec
fmessec@me.com

California Contact
Bruce Edley
bruceedley@msn.com

Mexico Contact
Wade Sherbrooke
wcs@amnh.org

GOT NEWS?
FOR THE PHRYNOSOMATIC
NEWSLETTER THAT IS...
Send your photos (with captions),
cartoon, artwork, poems, or articles
for the newsletter to Leslie Nossaman
at poppies14@comcast.net today!

on the web at — www.hornedlizards.org
ants (94.23%) along with a small percentage of other insects which is similar to the diet for western populations. I found slight differences in diet composition and prey types eaten between the introduced populations. Interestingly, *P. cornutum* in South Carolina did not eat *Pogonomyrmex* harvester ants (the most common prey in native western populations). Instead, I found that ants from the genus *Dorymyrmex* were the most common prey consumed, suggesting that harvester ants may not be needed for *P. cornutum* to persist as long as other ants are available.

In collaboration with Dr. Dean Williams from Texas Christian University, I performed genetic analyses on *P. cornutum* from South Carolina and directly compared them to individuals from the native range. I found that the introduced populations had less genetic variation than the populations in the native range. Additionally, only two haplotypes were found in the South Carolina populations, indicating a small single founding event. Both the nuclear and mitochondrial data suggested that South Texas was the source of the South Carolina introduction.

I am grateful that I was selected as a recipient of the 2015 Horned Lizard Conservation Society grant award and I used the funding to cover the cost of materials and travel to my field sites. This research was performed as part of my M.S. Environmental Studies degree at the University of Charleston, South Carolina.
Meet our nominees for 2017-2018 HLCS Board of Directors

Jared Fuller assumes the Presidency as he has been President-Elect for the last 2 years under the guidance of out-going President, Tim Tristan. Elections for our new leaders occur every two years, and we have a great slate for the incoming board. Enclosed with this issue of *Phrynosomatics*, is the ballot for our incoming Board of Directors. We’ve included an autobiography for each person on the ballot so you can get to know them. Please review the candidates, make your selections and mail the completed and stamped ballot to the address preprinted on the reverse side of the ballot by December 15, 2016. Thank you for voting!

… – President-Elect
None yet

… – Treasurer
None yet

Leslie Nossaman – Secretary
From when I was very young I have always had a particular fondness for horned lizards when they were all over our backyard in West Texas. Starting in 2003 I have been involved with the Horned Lizard Conservation Society and felt like I connected with an old friend. In 2004 I started working on the HLCS newsletter, *Phrynosomatics* as the Copy Editor. The main responsibility for the Secretary is to be responsible for all corporate records and publications. I have been keeping records for the HLCS for all their surveys, biennial meetings, grant recipients, membership numbers over the years, and all the attributes that go with these topics. I also have copies of all the newsletters since HLCS started. I have been working as the Secretary since February 2016 and have some ideas that I would like to implement on how we can improve our record management.

Monty Criswell – Director At-Large
I received my bachelor’s degree in biology from the University of Houston and am starting my master’s degree in wildlife science to be obtained from Texas A&M University this fall. I have also obtained certification as a Texas Master Naturalist and am an active member of the coastal prairies chapter since 2014. I have been a herpetology keeper with the Houston Zoo since 2012, and a coworker and I have received funding for a project in which we are performing habitat surveys at the Katy Prairie Conservancy in which we hope to determine the viability of re-introduced Texas horned lizards. The Houston Zoo just received 12 *Phrynosoma cornutum* hatched at the Dallas Zoo and we plan on getting more involved in this species. As the appointed Institutional Representative for *P. cornutum*, I feel as if I would make a valuable addition to the board of the society.

Horned Lizard Research Grant 2017 Applications

The Horned Lizard Conservation Society is dedicated to protecting horned lizards by documenting and publicizing the values and conservation needs of horned lizards, promoting horned lizard conservation projects, and assisting with horned lizard management initiatives. Towards those ends, the HLCS annually sponsors research that has direct conservation applications. To learn more about the society and past grants, go to http://www.hornedlizards.org/.

We will be offering grants again in 2017. In the past, priority has been given to projects that have direct conservation implications, including public education.

To apply, send a proposal detailing the goal of the study, the rationale for it including relevance to conservation of horned lizards, and how your work would benefit from this opportunity. The proposal may not exceed 1000 words, excluding up to ten references.

Continued on page 7
2016 BALLOT

Please select a candidate below or write in a candidate of your choice. Please make sure the person has your permission to write their name on the ballot as a write-in.

President-Elect

______ other (write-in):_________________________________________

Treasurer

______ other (write-in):_________________________________________

Secretary

______ Leslie Nossaman
______ other (write-in):_________________________________________

Director At-Large

______ Monty Criswell
______ other (write-in):_________________________________________

YOUR NAME: ______________________________________________________________

Ballots should be postmarked by December 15, 2016!

If you don't want to mail through the post, you can email your vote to Jared Fuller at: jaredfuller8@hotmail.com
Be sure to add your name to the email so we can keep track of it.
Horned Lizard Items Make Great Holiday Gifts!

By Leslie Nossaman

The holiday season is coming and have you completed your shopping yet? Did you know that the Horned Lizard Conservation Society has over 20 items for sale? The Society has a fantastic inventory of clever and cute horned lizard items that are appropriate for kids of all ages. Here is a general listing of what you can find:

<table>
<thead>
<tr>
<th>Figurines</th>
<th>Caps</th>
<th>Pins</th>
<th>Tie tacks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earrings</td>
<td>Necklaces</td>
<td>Guardian Angels</td>
<td>Hood ornaments</td>
</tr>
<tr>
<td>Prints</td>
<td>Cards</td>
<td>Christmas cards</td>
<td>Magnets</td>
</tr>
<tr>
<td>Masks</td>
<td>Books</td>
<td>Bookmarks</td>
<td>Tote bags</td>
</tr>
<tr>
<td>Bumper sticker</td>
<td>Books</td>
<td>Key Rings (photo shown)</td>
<td></td>
</tr>
<tr>
<td>Cookie cutters (photo shown)</td>
<td>Books</td>
<td>T-shirts (photo shown)</td>
<td></td>
</tr>
</tbody>
</table>

These items would make a wonderful holiday gift for family members or friends. And the proceeds from the sale go to benefit horned lizard conservation. For more information go to the Horned Lizard Conservation Society website and select the STORE tab. http://www.hornedlizards.org/store.html

Horned Lizard research grant...continued from page 4

Also include a preliminary budget with any other funding sources available or received for your project. In addition, send a short resume or CV (up to 3 pages) for the lead applicant and have a single letter of reference sent to Leslie Nossaman: poppies14@comcast.net and Tim Tristan: exoticvet@yahoo.com. The deadline is January 1, 2017. The decision will be announced by January 31, 2017.

JOIN US and Help Protect the Texas State Reptile

www.hornedlizards.org
Table of Contents

The status of an introduced species (*Phrynosoma cornutum*) on barrier islands in South Carolina ............pp 1, 3
Courtney Heuring

Meet our nominees for 2017-2018 HLCS Board of Directors .................................................................p 4

Horned Lizard Research Grant 2017 Applications ..................................................................................pp 4, 7

2016 Ballot ........................................................................................................................................... pp 5, 6

Horned Lizard Items Make Great Holiday Gifts! ......................................................................................p 7

*Phrynosomatics* is now sent electronically.