Gall forming insects are specialized herbivores commonly subjected to high mortality from diverse parasitoid wasp communities (1-3). Fundamental to understanding the structure of these communities is determining the diversity, timing of attack, and interactions among parasitoids (4-6). Competitive interactions among parasitoids in gall communities are intense as multiple parasitoid species typically coexist within the same host population (1,5). Constraints on parasitoids, which may translate into temporal niche partitioning of the gall resource, include gall size, ovipositor length, gall toughness, and interspecific interactions within the galls (1,5,7-14). *Belonocnema treatae* (Hymenoptera: Cynipidae) is a hostspecific leaf-galler on the leaves of *Quercus fusiformis*, Plateau Live Oak. Galls are initiated in March and are attacked by 12 species of parasitoids during development (May-November). The research proposed herein tests the hypothesis of temporal niche partitioning among parasitoid species.

The hypothesis of temporal niche partitioning will be investigated by determining the activity period of all species using a field study. Following *B. treatae* oviposition (April), exclosure bags (2’ X 3’ small mesh, Nytex screen) will be placed on branches of the gall-former’s host tree at SWT’s Freeman Ranch. Two hundred ten branches across six trees will be ‘bagged’ to exclude parasitoids. Eight treatments (activity windows of 30 days each) will be established by temporarily removing a subset of bags to allow active parasitoids access to developing galls. Subsamples of galls will then be collected monthly throughout the study as galls mature. Galls will be measured, stored in gelatin capsules, and incubated in the laboratory. Emergent parasitoid species will be identified to species using a key developed by the author with help from the USDA SEL.

The hypothesis that parasitoids use discrete windows of attack (temporal niche partitioning) will be tested by comparing the presence of each species of parasitoids within each activity window. If the parasitoids do not use discrete windows of attack then all species will be present in all windows. The hypothesis that the windows of attack correspond with gall size will be tested by comparing the mean gall size and attack success of each species and mapping this information onto species ovipositor length. If the size of the gall does not affect parasitoid attack then each species of parasitoid should be found across galls of all sizes. The results will clarify the relationship between parasitoid attack phenology and gall development phenology in determining the structure and composition of the parasitoid community centered on *Belonocnema treatae*. 
Literature Cited


Budget

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<th>Quantity and unit</th>
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<th>total</th>
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<tr>
<td>3. Lumite Screen, Mesh 52X52 available from Synthetics Industries, Inc. Gainsville, GA</td>
<td>(1 roll) 72”X100’</td>
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<td>2. Gelatin capsules size 00 available from Frontier coop. Norway, IA</td>
<td>(5) 1000/bag</td>
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<td>3. Felt available from Hobby Lobby San Marcos, TX</td>
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<td>4. Velcro 1”X10’ available from Hobby Lobby San Marcos, TX</td>
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Total Requested $649.88