

Initial Editorial Decision

12 December 2009

Dear Dr. McGlynn,

I have received two reviews of your manuscript. They are copied below. I have also attached a copy of the PDF that was sent to the reviewers as it will help you follow their reference to line numbers.

At this time the reviewers are not able to recommend publication of your manuscript. I concur. However, I would send an adequately revised version to review for re-consideration. When you send a revised version, please include a message to me stating how you responded to each of the reviewer's comments.

Please review the Instructions for Authors to ensure that the revised manuscript follows the standards of the journal.... [instructions excised]

Reviewer A:

In the manuscript titled Serial monodomy in the gypsy ant *Aphaenogaster araneoides*: does nest odor reduction influence colony relocation? the author, T. McGlynn demonstrates the relationship between nest odors and use. The gypsy ant uses multiple nests apparently to avoid predators (i.e. army ants). Movements into nests increase as odors decrease.

This manuscript contributes to our understanding of defense and antipredatorial behavior by social insects. Nevertheless, it requires extensive revision before publication. The introduction needs more depth, particularly with regards to background on the use of multiple nests as a means to avoid natural enemies. Moreover, the results section is too short; a more detailed discussion on the figures could help. The discussion should put the results in the perspective of other studies of similar behaviors.

Reviewer B:

McGlynn et al. are carrying out investigations on a very interesting study system, gaining major insight into ant behavior and the selective forces shaping that behavior. This manuscript presents what I think is a solid dataset that makes a significant contribution to our understanding of the system. However, the manuscript has serious problems with English composition and logical structure. I recommend much more pre-submission review and editing.

23. treatments -> treatment

43. contract -> contrast

49. may reduce -> reduces

54-55. Longino found elaborate nest entrances and suggested several adaptive explanations but did not favor any particular one. Saying they "apparently serve to deter ... army ants" would begin to morph this conjecture into a fact, so this line should be omitted.

57. this -> the

61. nests; relocation -> nests. Relocation

66. It was proposed -> McGlynn et al. proposed

73. Cross -> cross

78. that are -> that

84. All field research was conducted at in old growth tropical rain forest within La Selva Biological Station, located in the Atlantic lowlands of northeastern Costa Rica between May and July 2008. -> All field research was conducted in old growth tropical rain forest within La Selva Biological Station, located in the Atlantic lowlands of northeastern Costa Rica. The study was carried out between May and July 2008.

89. Nests were located through direct searching, and also by baiting with 20% sucrose and hand-feeding foragers morsels of tuna or cookies to follow individuals bearing food back to their nests. -> Nest were located by direct searching and by attracting foragers to baits and following them back to their nests.

107. nets -> nests

93-109. This whole section is very jumbled and has multiple problems with English composition, such that the Methods are unclear. Treatment and control regimens are mentioned before they are described. A regimen is a repeated activity. Not clear what the "conclusion of the regimen" is. Not clear what "commencing regimen in alternating sequence" means. Various phrases seem misplaced and separated from where they belong.

111. Several characteristics of each nest and nest movement were scored. Nest substrate was recorded. Nest openings were narrowest at the entrance, which was oval to round in shape. The size of entrance calculated using the equation for the area of an oval, using the maximum diameter measured to mm accuracy and the diameter of the line perpendicular to the maximum diameter at its midpoint measured to mm accuracy. Nest area sizes were distributed into two discrete size classes for analyses, small (1.5 – 2.5 cm²) and large (4.0 – 15.4 cm²).

Two characteristics of each nest were recorded: substrate and entrance area. Substrate was ...[need to explain]. Nest openings were oval to round in shape and narrower than inner nest diameter. [doesn't make sense to say nest opening was narrowest at entrance, since nest opening = entrance. If you are implying that nest cross-section narrows toward entrance, contradicts earlier statement that nest cross section is constant to entrance.] The size of the entrance was calculated using the equation for the area of an oval, using the maximum diameter measured to mm accuracy and the diameter of the line perpendicular to the maximum diameter at its midpoint measured to mm accuracy. Nest entrance area was classified into two discrete size classes for analyses: small (1.5 – 2.5 cm²) and large (4.0 – 15.4 cm²).

121. states for which colonies latency is measured, but never says what latency of reoccupation is. Time until reoccupied?

127-128. Not clear what daily movement event is. Not clear what "final observation within the nest" means.

129. nest size = nest entrance area?

No results about nest substrate. This variable mentioned but inadequately explained in Methods, then no results about it.

I don't understand the statistical approach. Why is nest entrance area put into size classes? Why not treat as continuous variable? Why isn't relation of continuous response variables to ventilation treatment analyzed with simple t-tests?

In Discussion, I can't follow logic of explanation for higher movement frequency in ventilated nests. Is it that ventilation preferentially attracts larger colonies, and larger colonies move more often?

XXXXXXXXXX XXXXXXXXXXXXX

Associate Editor

Journal of Insect Science

<http://insectscience.org>

Cover letter for revised submission 01 February 2010

Dr. XXXXXXXXXXXX:

I am pleased to submit a revision of my manuscript, "Serial monodomy in the gypsy ant *Aphaenogaster araneoides*: does nest odor reduction influence colony relocation?" to be evaluated for the Journal of Insect Science.

I account for the comments of reviewer A and Reviewer B separately. I agree that their reviews have helped to improve the manuscript and I have been able to make changes, or clarifications, that should satisfy their concerns.

Reviewer A requested more a extensive introduction featuring information about how multiple nests are used as a means to avoid natural enemies. Also as requested, I added detail to the discussion explaining the figures, and in the discussion I added information to place the results in the perspective of other studies of similar behaviors. I am reluctant to provide further commentary than I already have, as it would verge into the realm of speculation that would not be founded on this dataset with its limited scope.

I was asked why nest opening area was treated as a categorical variable. I was not able to treat it as a continuous variable because the distribution of next opening sizes is discretely

bimodal and the standard conversions still yield a bimodal or extremely skewed distribution. Given this constraint, the most powerful approach is to use the other categorical variable (treatment/control) in a Generalized Linear Model. This is more robust than a set of u-tests (which has less statistical power and also would increase the probability of a type II error because of multiple comparisons).

Reviewer B had a number of minor suggested revisions, which have been made as prescribed. The reviewer indicated specific problems with the organization of the text, including the order in which certain ideas were introduced, and how certain sentences were phrased. I have added the corresponding detail about methods including a more detailed definition of the response variables as requested. I also have improved the logical flow of the text.

If you have any questions or concerns, please email or call me, and I look forward to your decision.

Sincerely,

Terry McGlynn

**Email to editor in chief to follow up on revised submission
10 October 2010**

Dr. xxxxxxxxxxxxxxx:

I'm just checking in on the progress on my manuscript, if any. I was going through a list of papers in progress and noticed that I hadn't heard anything since this February, when I submitted my revision. I'm not overly concerned about quick turnaround time, but I would like to make sure that things in pipeline are in progress.

cheers
terry

Response from editor about status of revised submission
11 October 2010

Terry,

Your manuscript has been accepted for publication. It will be edited and formatted for publication. I will send you URLs to examine it for errors before it is published. We are working on papers in order of submission = paper number. Your paper is # 1025. We are working on papers in the 900's, so I think we will reach yours relatively soon.

Regards,

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