

Fiscal Year 2019  
Panel Outcome Report  
Veterinary, Medical and Urban Entomology (NP 104)

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David Shapiro-Ilan, Ph.D., Scientific Quality Review Officer  
(January 2018-December 2019)

Date

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Marquea D. King, Ph.D., Director/Program Coordinator

Date



Office of Scientific Quality Review  
Agricultural Research Service  
United States Department of Agriculture

**Panel Outcome Report FY 2019**  
**Veterinary, Medical and Urban Entomology (NP 104)**

This Panel Outcome Report is a summary of the Veterinary, Medical and Urban Entomology (NP 104) Office of Scientific Quality Review (OSQR) Project Plan Peer Review (PPPR) process held from March 2019 – October 2019.

The project plans reviewed by these panels were applicable to the mission of the National Program 104 (NP 104) to eliminate arthropod vectors and the diseases that they transmit to livestock, humans, and other animals and to nullify their economic impact through research to develop novel and/or improved risk assessment, surveillance, control, and monitoring tools for arthropods and arthropod-borne diseases of veterinary, medical, and urban importance.

This panel outcome report is intended to inform the Office of National Programs (ONP) and each Area of their research (research scientist or SY) progress as it relates to the NP 104. Data tables display outcome of scoring by Areas, Panels and overall program.

Selected chairs (Table 1) were mainly recommended by National Program Leaders (NPLs) from NP 104 and/or previous OSQR service; others were sought based on their nationally recognized expertise by the OSQR Director. They were examined for suitability to lead a panel review, screened for conflicts of interest (COI) and finally concurred upon by the current Scientific Quality Review Officer (SQRO), Dr. David Shapiro-Ilan.

**Table 1.**  
**Panels reviewed for the Veterinary, Medical and Urban Entomology, National Program (104) FY 2019.**

Panel	Panel Chair	Panel Meeting (Re-Review)	Number of Panelists	Number of Projects
NP 104 Panel 1: Ants	Michael Waldvogel	Wednesday, June 26, 2019	4	3
NP 104 Panel 2: Veterinary Important Insects	Justin L. Talley	Tuesday, August 13, 2019	3	4
NP 104 Panel 3: Medically Important Insects	Nathan Burkett-Cadena	Friday, June 21, 2019	4	3

**Review Process**

Following panel review for each plan, OSQR Director, with SQRO concurrence, sends each Area Director a panel consensus recommendation document. This may include recommendations for revision of the plan to which researchers are required to respond in writing and, as appropriate, revise their written plans in accordance with guidelines as detailed in the OSQR Handbook (see [www.ars.usda.gov/osqr](http://www.ars.usda.gov/osqr)).

In addition, as part of the panel deliberation, a scoring of the overall quality of the plan, is judged based on the degree of revision the panel deems is required. This scoring is termed an “Action Class.” Each reviewer is asked to anonymously provide an Action Class rating for each plan. OSQR assigns a *numerical equivalent* to each Action Class rating and then averages these to arrive at an overall Action Class score for the plan.

The Action Class is defined as follows:

**No Revision Required.** An excellent plan; no revision is required, but minor changes to the project plan may be suggested.<sup>1</sup>

**Minor Revision Required.** The project plan is feasible as written, requires only minor clarification or revision to increase quality to a higher level.

**Moderate Revision Required.** The project plan is basically feasible but requires changes or revision to the work on one or more objectives, perhaps involving alterations of the experimental approaches in order to increase quality to a higher level and may need some rewriting for greater clarity.

**Passed Review:**

For plans receiving one of the above three Action Class scores (No Revision, Minor Revision or Moderate Revision), scientists are required to respond in writing to address all panel comments in the consensus recommendation document; revise their project plan as appropriate; and submit the revised plan and responses to the OSQR through their Area Office. Both the updated plan and the recommendations' form are reviewed by the SQRO and, once they are satisfied that all review concerns have been satisfactorily addressed, the project plan is certified, the Area Office is notified, and the project plan may be implemented.

**Certification:**

*Certification is contingent upon making a good faith effort to satisfactorily address panel comments and recommendations. A plan has not "passed" the OSQR PPR process until the SQRO's certification is delivered to the Area.*

**Major Revision Required.** There are significant flaws in the experimental design and/or approach or lack of clarity which hampers understanding. Significant revision is needed.

**Not Feasible.** The project plan, as presented, has major scientific or technical flaws. Deficiencies exist in experimental design, methods, presentation, or expertise which make it unlikely to succeed.

**Failed Review:**

For plans receiving one of the above two Action Class scores (Major Revision or Not Feasible), scientists are required to address, in writing, all panel comments in the consensus recommendation document; revise their project plan as appropriate; and submit the revised plan and responses to the OSQR through their Area Office *AND* then must undergo a Re-Review by the initial deliberating panel, at which time a second set of consensus recommendations and second Action Class score are obtained.

Per the Re-Review, if the plan receives an Action Class score of a No Revision, Minor Revision or Moderate Revision the project plan may be implemented after following the **Passed Review** section above. Plans receiving a second Major Revision, or Not Feasible score are considered failed reviews. The Action Class and Consensus Recommendations from the Re-Review are provided to the Area with NO further option for revision or review on that particular project plan as it has been submitted.

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<sup>1</sup> While a No Revision action class would imply that change to the plan is not required, where the panel requests specific additions to the plan, if accepted, these should be incorporated into the updated plan.

Such plans may be terminated, reassigned, or restructured at the discretion of the Area Office and ONP. For plans receiving Major Revision, it may be elected not to further revise them and to end review with the plan not receiving certification (plan fails review). For those receiving a score of Not Feasible, Area and National Program Leader (NPL) approval are needed for the plan to be revised for re-review. Otherwise the plan will be considered to have failed review. Subsequent action with regard to the research and researchers is left to Area and ONP-NPL leadership.

At the finale of each PPPR deliberation, the chair and panel reviewers are asked to provide general statements or recommendations on the overall process as well as the general quality of the plans which underwent review. The Chair is specifically asked to provide a Panel Chair Statement which they feel focuses on the overall conduct of the review or any broad areas with regard to the research they feel would be of benefit to future researchers or the Agency as a whole. Copies of such statements for NP 104 are found in the following this report.

**Review Outcomes**

Reviews can vary, but ultimately, depends on a combination of the panelists selected and the scientific writing capabilities of the team who wrote the project plan. The OSQR is responsible for assuring that each panel contains subject matter experts who provide knowledgeable, clear, rigorous, and fair assessments. Therefore, PPPR panels vary in their overall outcomes.

Uniquely, the ability of an ARS research team to respond to panel recommendations/comments in order to *revise and improve project plans is, perhaps, the greatest strength of the ARS PPPR process.*

ARS uses the National Program Panel Outcome Report as a measure of scientific progress and as a demonstration of overall program quality, how well researchers understand and address the needs of the expert panel reviewers. Initial review scores that are moderate or higher are recorded as such and will not be certified as having completed the PPPR until the SQRO has deemed that all reviewer concerns have been satisfactorily addressed. For lower scores/failed reviews, the panel provides a re-review score, which is considered along with the initial review score.

**Table 2.**  
**Initial and Re-review Scores for Veterinary, Medical and Urban Entomology, National Program (104) FY 2019.**

	No revision	Minor	Moderate	Major	Not Feasible	Re-Review
<b>Panel 1:</b>		<b>1</b>	<b>2</b>			
<b>Panel 2</b>		<b>1</b>	<b>3</b>			
<b>Panel 3</b>		<b>3</b>				

\*Review conducted by no less than two (or greater) expert panel reviewers providing independent written reviews and scores without group panel deliberation. Scores reflect the average of no less than two expert reviewers and written reviews are compiled and screened by OSQR Director.

**Table 3.**

**Area Scores for Veterinary, Medical and Urban Entomology, National Program (104)**

	No revision	Minor	Moderate	Major	Not Feasible
MWA					
NEA		1			
PA		1	3		
PWA					
SEA		3	2		

**Table 4.**

**Overall Scores for Veterinary, Medical and Urban Entomology, National Program (104)**

	No revision	Minor	Moderate	Major	Not Feasible
# Plans with each score		5	5		

**Overall Panel Characteristics:**

**Panel Characteristics**

The OSQR PPPR relies heavily on expert panel member selection by the OSQR Director and SQRO selected Panel Chairs. ARS scientists, research leaders, and ONP are encouraged to recommend panelists they understand to be free of any COIs. While the selected/seated Panel Chair is under no obligation to use Agency recommended panelists, the SQRO must review and approve the Chair’s panelist selections and may ask for substitutions or provide additional experts for consideration.

Factors and qualifications considered in PPPR panel selection (chair and panelist) are those such as: being a qualified expert overall in the field being reviewed, research tenure, publication record, award history, geographic location, overall diversity and availability to participate fully in the process all play an integral role in who is invited to serve an ARS/OSQR PPPR panel. Many of the reviews are composed with a balance of nationally and internationally recognized experts. Tables 5-6 display various characteristics of the panel composition, all affiliations were accurate at the time of the panel review.

**Affiliations**

Peer reviewers are affiliated with several types of institutions, primarily those in academia, but also special interest groups and industry. In some cases, peer reviewers have recently retired but are still active as consultants, scientific editorial board members, and members of professional societies.

**Table 5.**

**Panelist Faculty Rank and Affiliations for Veterinary, Medical and Urban Entomology, National Program (104) FY19.**

Panel	Professor	Associate Professor	Assistant Professor	Government	Industry & Industry Organizations	Other
Panel 1:	3	1				
Panel 2	3					
Panel 3	3		1			

**Research Impact, Gender, Geographic Location**

The OSQR PPPR process is lauded as a rigorous and objective ARS function striving for the highest possible scientific credibility. In general, panelists shall hold a doctoral degree unless the discipline in question is one which does not subscribe to a doctorate level education to achieve the highest recognition and qualification (e.g., engineers and modeling specialists). Panelists are also judged by their most recent professional accomplishments (e.g. awards and publications completed in the last five years). Finally, the panelists who are currently performing or leading research to address a problem similar to those being researched in the National Program under review are preferred. The following table depicts their average Scopus H-index, gender, and geographic location as it relates to either one of the 5 Areas in the ARS North American continent or other foreign locations as applicable.

**Table 6.**

**Panel Additional Information for Veterinary, Medical and Urban Entomology, National Program (104) FY19.**

Panel	H-Index	Gender	Geographic Locations
Panel 1:	Average 35	4 Males	1 Plains Area 2 Mid West Area 1 South East Area
Panel 2	Average 35	3 Males	2 Plains Area 1 North East Area
Panel 3	Average 28	4 Males	2 Plains Area 1 South East Area 1 Mid West Area

**Current and Previous ARS Employment**

The Research Title of the 1995 Farm Bill 105-585, mandated ARS’s requirements for the peer review of ARS research projects: 1) panel peer reviews of each research project were mandated at least every five years, and 2) the majority of peer reviewers must be external (non-ARS) scientists.

**Table 6. Panelist ARS Affiliations for Veterinary, Medical and Urban Entomology, National Program (104) FY19.**

<b>Panel</b>	<b>Currently Employed by ARS</b>	<b>Formerly Employed by ARS</b>
Panel 1:	None	None
Panel 2:	None	None
Panel 3:	None	1

**List of Panel Chairs**

***NP 104 Panel 1: Ants***

**Michael Waldvogel, PhD**

North Carolina State University  
 Extension Associate Professor and Extension Specialist with the Department of Entomology and Plant Pathology at North Carolina State University.

**Education:**

MS, The Pennsylvania State University  
 PhD, North Carolina State University

***NP 104 Panel 2: Veterinary Important Insects***

**Justin L. Talley, PhD**

Oklahoma State University  
 Professor/Extension Livestock Entomologist  
 Dept. of Entomology and Plant Pathology. Oklahoma State University, Stillwater, Oklahoma.

**Education:**

MS, West Texas A&M University  
 PhD, Kansas State University

***NP 104 Panel 3: Medically Important Insects* Nathan D. Burkett-Cadena, Ph.D.**

University of Florida  
 Assistant Professor  
 University of Florida, IFAS, Entomology and Nematology Department  
 Florida Medical Entomology Laboratory

**Education:**

MS, Entomology, Auburn University  
 PhD, Entomology, Auburn University, 2010

**NP 104 Veterinary, Medical and Urban Entomology, National Program Panel Chairs Statements**

Panel Chair responsibilities include providing the OSQR with a statement that describes their overall panel experience, how the panel was conducted, and general quality of the plans reviewed, it does not lend itself to discussing details of specific research project plan reviews nor attribution to individual panelists. Panel Chairs are given a format to follow for writing their statements, however, are free to discuss what they believe is important for broader audiences.

July 7, 2019

David I. Shapiro-Ilan, Ph.D.  
Scientific Quality Review Officer  
USDA-ARS, SEA  
SE Fruit and Tree Nut Research Unit  
21 Dunbar Road  
Byron, GA 31008

Dear Dr. Shapiro-Ilan:

The mission of NP104 is to eliminate arthropod vectors and the diseases that they transmit to livestock, humans, and other animals and to nullify their economic impact. That mission is to be accomplished through research that will develop novel and/or improved risk assessment, surveillance, control, and monitoring tools for arthropods and arthropod-borne diseases of veterinary, medical, and urban importance. The focus of our review panel was NP104 - Component 3 which addresses invasive ants such as red imported fire ant (*Solenopsis invicta*), the tawny crazy ant (*Nylanderia fulva*), and little fire ant (*Wasmannia auropunctata*).

In order to meet the high standards expected of these review panels, I relied on several resources to select panel members:

- a) The statement of objectives found in each project's PDRAM.
- b) The list of suggested reviewers provided by the OSQR. Note – This list should be reviewed and updated by OSQR. Some of the listed individuals have new titles due to promotions, or have moved into new positions at the same or different institutions, or have retired.
- c) Scholarly search websites, including, “Google Scholar”, “SCOPUS” or “Web of Science”.
- d) My familiarity with the research and accomplishments of some panel candidates.

All of the chosen panel members are highly regarded experts in their respective fields of research that were related to the specific components of the different projects, their objectives, hypotheses, and the study methodologies. I assigned a primary and secondary reviewer for each project based on individual reviewer strengths of those topics. Reviewers submitted their Reviewer Comment forms to the OSQR which then compiled and distributed them to the entire panel prior to convening our conference call. After reading the reviewers' comments, it was clear that the panel members were familiar with the topics and had invested significant time and effort to provide a comprehensive review and constructive feedback to the respective project leaders.

The Review Panel convened via conference call on Wednesday, June 26, 2019. In general, all three project proposals were considered ambitious and well-conceived although this was expected given the research productivity of the scientists involved in the plans. They presented hypotheses and objectives that bridged basic and applied research and were founded on conclusive evidence

derived from previous research as well as preliminary data from newly-discovered pathogens and natural product chemicals with potential as novel insecticides. All three proposals made use of strong collaborations with other USDA labs and university researchers who would bring critical expertise to specific project components. The panel agreed that some of the research components, particularly involving chemical ecology and genetic pest management, might be considered “risky” because of the use of some very new technologies. However, this risk is easily balanced against the potential gains in our basic knowledge as well as new pest management tactics. The project leaders also showed long-term thinking and planning by building in contingencies for changes to subsequent year plans should early results prove negative or unsuccessful. The Review Panel found few faults in the proposals, although all agreed that there were some inconsistencies in the depth to the explanation of some components, particularly with regard to methodology. We attributed the missing detail largely to specific components that were likely outside the authors’ technical expertise. We assume that they will seek expert collaborations outside the unit or if current personnel vacancies within their unit are filled expeditiously.

I appreciate the opportunity and honor to serve as review panel chair. This external review process is critical to the credibility of research conducted within the USDA by its talented scientists across the country. From my perspective, the process is well-structured, thorough, and fair. I hope that the reviewers’ comments make positive and fruitful contributions to the proposed projects. The OSQR staff was extremely helpful. We had a bit of late start due to individual panel members’ schedules and the staff helped keep us on task to completion. They made the process very fluid. I would also like to thank you for your assistance during the early steps in selecting highly qualified panel members for this review. These proposed research projects have the potential to expand our understanding of social insects from many aspects. They can help to solidify the value of some new analytical tools. From a practical perspective, I expect to see these projects yield new environmentally sound control techniques that can help us more effectively manage these invasive species that have such a broad economic impact and effect these pests have on both public and animal health. We wish the researchers and their collaborators luck in their endeavors.

Sincerely yours,



Michael Waldvogel, PhD  
Extension Assoc. Professor



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Beltsville, MD 20705

9/25/2019

Dear Dr. David Shapiro-Ilan,

It was a privilege and challenge chairing the review panel for National Program 104-Veterinary, Medical, and Urban Entomology. The projects for our review panel were focused in the area of Veterinary Entomology. Our panel reviewed four projects with different levels of research activities focused on important veterinary pests.

Overall, the quality of proposals was sound and organization of all proposals followed a logical order to understand the science behind the stated objectives. All proposals presented research activities on pests that are very important to veterinary entomology. Within in each proposal there were some weaker components that did not justify the impact of some of the proposed activities but were determined by the review panel to still be important activities that would provide new knowledge. While the review panel determined that some proposals were stronger and broader in scope than others, the panel understood the personnel in place at each location was a limiting factor to some of the proposed research goals. Some discussion centered on some techniques that seemed to be all or nothing types of approaches that could lead to alteration of subsequent activities that would possibly alter the enter objective goals if certain results were not determined when collecting some baseline data. All panel members agreed that certain components needed some preliminary work in order to justify some of the proposed activities and acknowledges that scientific discovery is critical to advance the field of veterinary entomology but some additional contingency outlines would have been beneficial. The quality of proposals was never in doubt concerning the soundness of the science but rather questioning if the overall impact for the proposed activities would translate back to stakeholders.

The overall review process went smoothly with all panel members presenting constructive comments. Each reviewer was well prepared and prepared with questions regarding each proposal. The panel addressed strengths and weaknesses for all proposed approaches to each sub-objective within each overall objective. This made for a lengthy but efficient detailed discussion on the approaches being proposed. However, the selection of the review panel members was challenging mainly for two reasons with the first being the lack of qualified panelist to select from due to the current status of veterinary entomology within academia and the second reason was due to my schedule. When the selection of panelist was delayed this pushed the selection process into my field season. I take full responsibility for the delay on my part but also acknowledge that a chair probably needs to be more directive in their actions when trying to recruit panel members for the review process. Veterinary entomology as a field is currently at a low point in terms of FTE's within an academic institution dedicated to this field within



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the United States. Also, the suggested list presented by USDA Scientific Quality Review will need to be updated to reflect current academics in the field of veterinary entomology as the current list is mainly composed of those that work in the closely related field of medical entomology. While those within the field of medical entomology can certainly evaluate the scientific approaches being proposed they may not necessarily understand the overall impact of proposed outcomes and how those relate back to stakeholders.

I would like to commend the Office of Scientific Quality for their guidance and patience while conducting this review on National Program 104 with projects focused on veterinary entomology. They were tremendous in helping find panel members that were qualified and aiding all panel members get all the correct documents from each project. The trainings they provided were very good and beneficial for panel members to have a clear understanding of the review process. Each panel member had a clear understanding of the different categories in which a project could fall into regarding the quality of the proposed work and managed conflict of interests very well given our small scientific community that tends to collaborate extensively throughout our field.

In the future, this panel will always have issues related to conflicts of interests but should have more qualified panel members to choose from for the next review period. It was a privilege to serve in the chair position and acknowledge the challenges the field of veterinary entomology faces as a scientific discipline.

Best Regards,

A handwritten signature in cursive script that reads "Justin Talley".

Justin Talley Ph.D.  
Professor / Extension Livestock Entomologist / Principal Investigator for OSU National Tick Rearing Lab  
Dept. of Entomology and Plant Pathology  
Oklahoma State University  
127 Noble Research Center  
Stillwater, OK 74078

21 June 2019

David I. Shapiro-Ilan, Ph.D.  
Scientific Quality Review Officer  
Office of Scientific Quality Review  
Agricultural Research Service, USDA  
5601 Sunnyside Avenue, MS 5142  
Beltsville, MD 20705

**Re: Panel chair statement for NP 104 Panel 3: Medically Important Insects**

Dear Dr. Shapiro Shapiro-Ilan,

This letter serves as Panel Chair Statement for NP 104 Panel 3: Medically Important Insects. The panel review meeting was held Friday, June 21, 2019 at 10:00 a.m. - 11:30 a.m. and was attended via teleconference by David I. Shapiro-Ilan, Marquee King, 3 anonymous reviewers and myself. The panel successfully completed reviews of the 3 projects as part of NP 104 Panel 3: Medically Important Insects.

Overall, reviews of all 3 proposals was favorable, with reviewers indicating a high degree of success and high likelihood that the proposed research will translate into an applied outcome. Some reservations were made regarding the low level of detail that was available in the methodology sections of all proposals. More information on the exact arthropods to be used, their status, numbers and rationale for use is warranted. However, the panel recognized that the strong teams assembled by the investigators and their extensive backgrounds in the systems of study should result in high likelihood of project success.

All anonymous reviewers were very well prepared for discussions, having submitted their written reviews in advance of the panel conference call. The overall process was very smooth and was facilitated by the online system and Marquee King's knowledge and expertise with the process. The reviewers provided thoughtful recommendations for enhancements without being overly critical of details that will understandably be worked out during the work. I would rate the overall quality of the review process as very high. The frequent email contact and organization of the process by Linda Daly Lucas, Marquee King and Michele Shaw was instrumental in the review success. I have no recommendations for improvement.

Finally, I would like to thank you, Marquee King, and three anonymous reviewers for contributing you time and effort towards the success of this Panel Review.

Sincerely,

Nathan Burkett-Cadena, PhD

A handwritten signature in black ink, appearing to read "Nathan Burkett-Cadena". The signature is fluid and cursive, with the first name "Nathan" being the most prominent.

Nathan Burkett-Cadena, PhD  
Assistant Professor  
University of Florida/IFAS  
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### **Office of Scientific Quality Review**

The Office of Scientific Quality Review manages and implements the ARS project plan peer review (PPPR) functions for all intramural research projects including administering the peer review policies, processes and procedures. OSQR centrally coordinates and conducts the PPPR for project plans within the Office of National Programs during a 5-year cycle.

The OSQR staff is responsible for:

- setting the schedule of Project Plan Peer Review sessions
- Panel organization and composition (number of panels and the scientific disciplines needed)
- Distribution of project plans
- Reviewer instruction and panel orientation
- The distribution of review results to Areas, ONP, and other interested parties
- Notification to panelists of the Agency response to review recommendations
- *Ad hoc* or re-review of project plans
- Final certification of each Area project plan

### **Contact**

Send all questions or comments about this Report to:

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