

# Navel Orangeworm Program 2024 – Weekly Report

Week Ending – March 1, 2024

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## I. Program Updates

### Navel Orangeworm Area Wide Program – Multi-Phase Approach

#### Phase 1 – 2018-2022

Phase 1 was the Initial Phase of the Navel Orangeworm (NOW) Program (Program) with a focus on developing NOW sterile insect technique (SIT) moths, determining their viability during cold storage transfer, performing quality control (QC) on mating propensity and survivability of the sterile moths, developing a trap monitoring program, and collecting preliminary damage data from the orchards participating in the Program's project site.

#### Phase 2 – 2023-2024

Phase 2 is the Data Phase of the NOW Program. The focus of this phase is controlling variables within the orchards participating in the Program's project site in order to increase the integrity of the field data being collected. During this phase a University of California Cooperative Extension (UCCE) coordinator will be a primary grower point of contact. They will be responsible for coordinating with growers and establishing orchards for the Phase 2 Program project site.

### Navel Orangeworm Sterile Insect Technique

The Navel Orangeworm Program utilizes NOW SIT moths obtained from the United States Department of Agriculture (USDA) and California Department of Food and Agriculture's (CDFA) Phoenix, Arizona Rearing Facility. QC tests are performed on every shipment of NOW SIT moths used for aerial releases.

Releases of sterile NOW moths are anticipated to begin in March 2024, with one magazine of approximately 750,000 sterile moths being released over select sites in West Fresno County. A second magazine is anticipated to be released later in the season alongside the first magazine when adequate resources become available. An official start date and release schedule for 2024 are still to be determined.

### Navel Orangeworm Trapping

The Phase 2 Area Wide Project Site for 2024 includes eight 640-acre orchards: four pistachio and four almond, located in Fresno County. Trapping is being conducted weekly year-round in all eight orchards, designated as Zones 1 through 8.

Listed below are any circumstances which prevented regular trap servicing in 2024:

- Week of January 5: No traps were serviced due to excessive rain and muddy conditions preventing access to trap sites
- Week of January 12: No traps were serviced in Zones 4 and 6 due to excessive rain and muddy conditions preventing access to trap sites
- Week of January 26: No traps were serviced due to excessive rain and muddy conditions preventing access to trap sites

- Week of February 2: No traps were serviced in Zones 3 and 7 due to pesticide applications on site
- Week of February 9: No traps were serviced due to excessive rain and muddy conditions preventing access to trap sites
- Week of February 16: No traps were serviced in Zones 4 and 8 due to excessive rain and muddy conditions preventing access to trap sites
- Week of February 23: No traps were serviced in Zones 1, 2, 5, 6, and 7 due to excessive rain and muddy conditions preventing access to trap sites
- Week of March 1: No traps were serviced in Zone 8 due to pesticide applications on site

## II. Project Design

The Area Wide Project Site was restructured in 2023 in preparation for Phase 2 of the Program. Phase 2 aims to establish more standardized and consistent approaches to mating disruption, sanitation, pesticide usage, and other cultural practices for more comparable data between each orchard set (release site/control site).

The 2024 Area Wide Project Site includes eight orchards, all of which were established in 2023 and located in Fresno County, identified as Zones 1 through 8. Listed below is information related to each orchard within the Program’s Phase 2 project site for 2024:

Zone #	Crop Type	Acres	Release/Non-release Site	Magazine Designation	Date Added to Area Wide Project
Zone 1	Pistachio	640	Non-release	TBD	February 2023
Zone 2	Pistachio	640	Release	TBD	February 2023
Zone 3	Almond	640	Non-release	TBD	February 2023
Zone 4	Almond	640	Non-release	TBD	February 2023
Zone 5	Pistachio	640	Release	TBD	March 2023
Zone 6	Pistachio	640	Non-release	TBD	March 2023
Zone 7	Almond	640	Release	TBD	April 2023
Zone 8	Almond	640	Release	TBD	April 2023

Each zone has a trap site ratio of approximately one trap site per 18 acres for a total of 36 trap sites for each 640-acre zone. Each trap site has one trap baited with NOW pheromone/PPO lures. All traps are serviced on a weekly basis. Servicing includes collecting trap bottoms and replacing with new trap bottoms. Bait/lure changes occur once a month, and trap tops are replaced as needed. Counts are performed on each trap collected to determine number of wild versus sterile captures and male versus female captures.

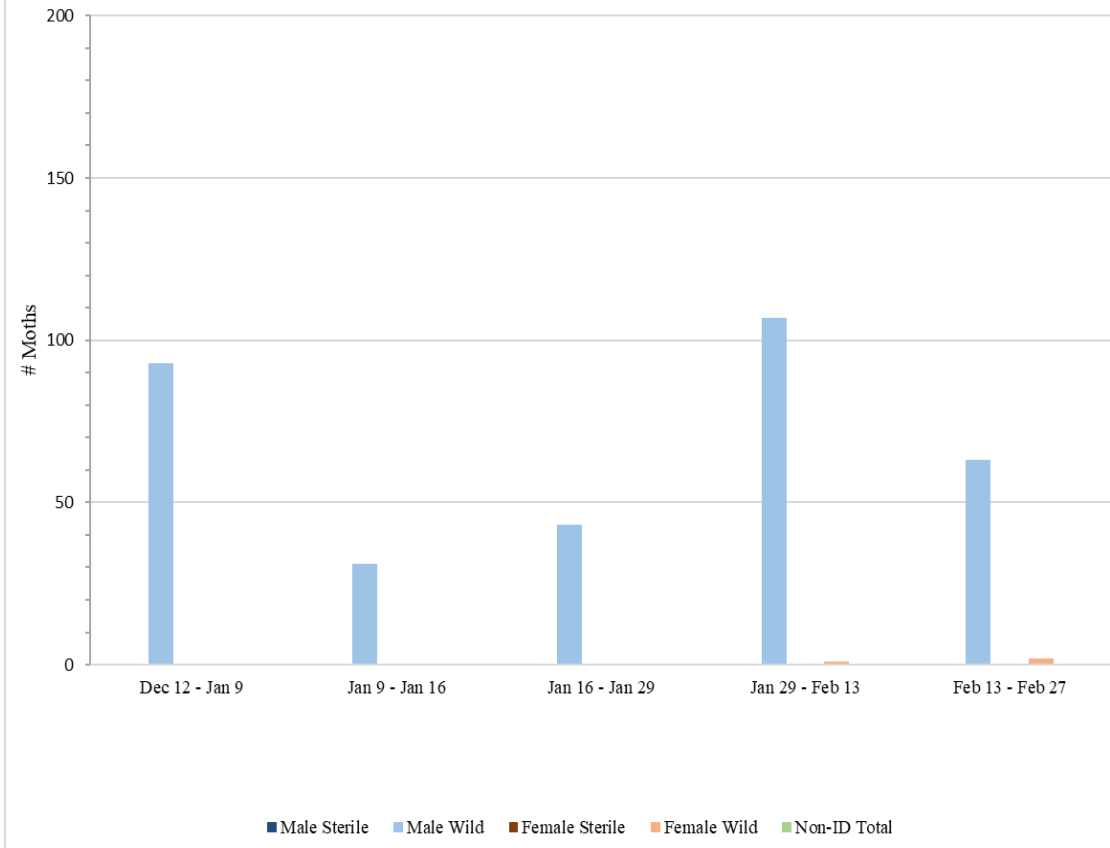
**III. Trap Results for Week Ending on March 1, 2024**

**Zone 1 – Pistachio Orchard**

A total of **35** pheromone/PPO lure-baited traps were collected from Zone 1 on Tuesday, February 27. Trap number 32 was missing.

<b>Zone 1 - Pistachio</b>								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
<sup>1</sup> Dec 12 – Jan 9	0	0	93	93	0	0	0	0
Jan 9 – Jan 16	0	0	31	31	0	0	0	0
<sup>2</sup> Jan 16 – Jan 29	0	0	43	43	0	0	0	0
<sup>3</sup> Jan 29 – Feb 13	0	0	107	107	0	1	1	0
<sup>4</sup> <b>Feb 13 – Feb 27</b>	<b>0</b>	<b>0</b>	<b>63</b>	<b>63</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>0</b>
<sup>1</sup> No traps were serviced in Zone 1 during the weeks of December 22, December 29, and January 5 due to excessive rain and muddy conditions preventing access								
<sup>2</sup> No traps were serviced in Zone 1 during the week of January 26 due to excessive rain and muddy conditions preventing access								
<sup>3</sup> No traps were serviced in Zone 1 during the week of February 9 due to excessive rain and muddy conditions preventing access								
<sup>4</sup> No traps were serviced in Zone 1 during the week of February 23 due to excessive rain and muddy conditions preventing access								

### Zone 1 - Pistachio Orchard - Pheromone/PPO Baited Traps

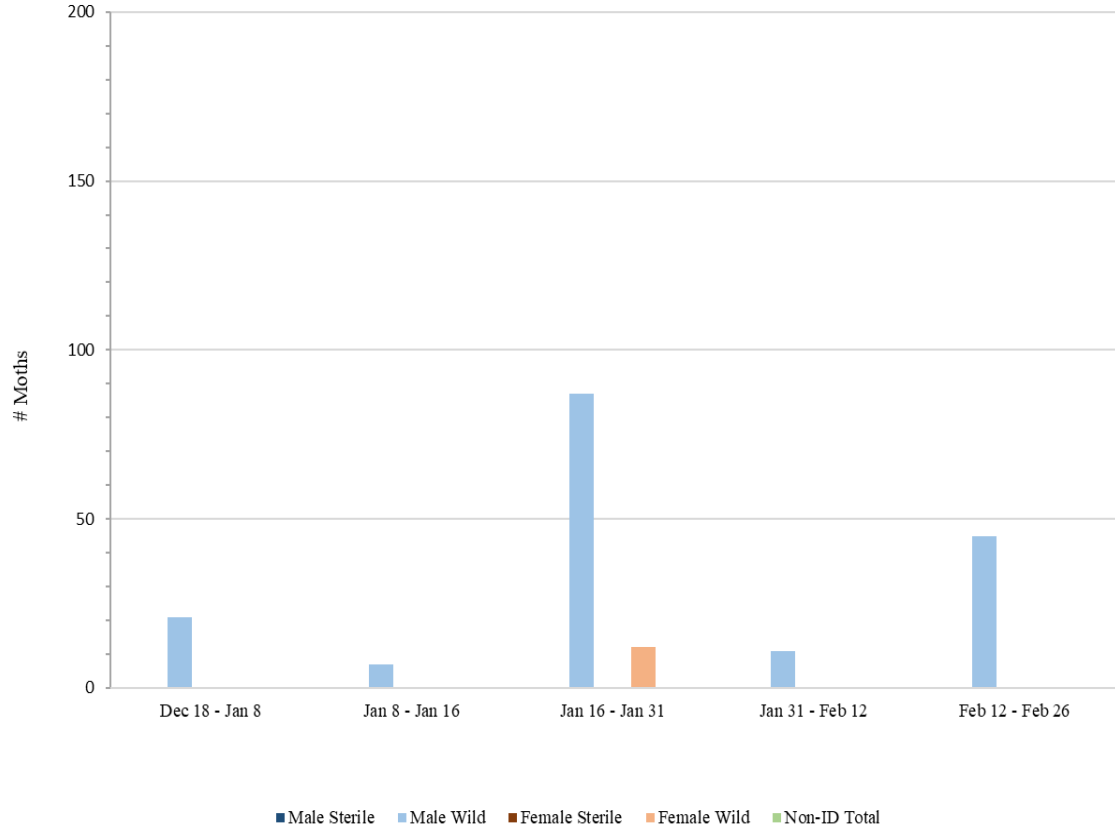


**Zone 2 – Pistachio Orchard**

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 2 on Monday, February 26.

<b>Zone 2 - Pistachio</b>								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
<sup>1</sup> Dec 18 – Jan 8	0	0	21	21	0	0	0	0
Jan 8 – Jan 16	0	0	7	7	0	0	0	0
<sup>2</sup> Jan 16 – Jan 31	0	0	87	87	0	12	12	0
<sup>3</sup> Jan 31 – Feb 12	0	0	11	11	0	0	0	0
<sup>4</sup> <b>Feb 12 – Feb 26</b>	<b>0</b>	<b>0</b>	<b>45</b>	<b>45</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<sup>1</sup> No traps were serviced in Zone 2 during the weeks of December 29 and January 5 due to excessive rain and muddy conditions preventing access								
<sup>2</sup> No traps were serviced in Zone 2 during the week of January 26 due to excessive rain and muddy conditions preventing access								
<sup>3</sup> No traps were serviced in Zone 2 during the week of February 9 due to excessive rain and muddy conditions preventing access								
<sup>4</sup> No traps were serviced in Zone 2 during the week of February 23 due to excessive rain and muddy conditions preventing access								

Zone 2 - Pistachio Orchard - Pheromone/PPO Baited Traps

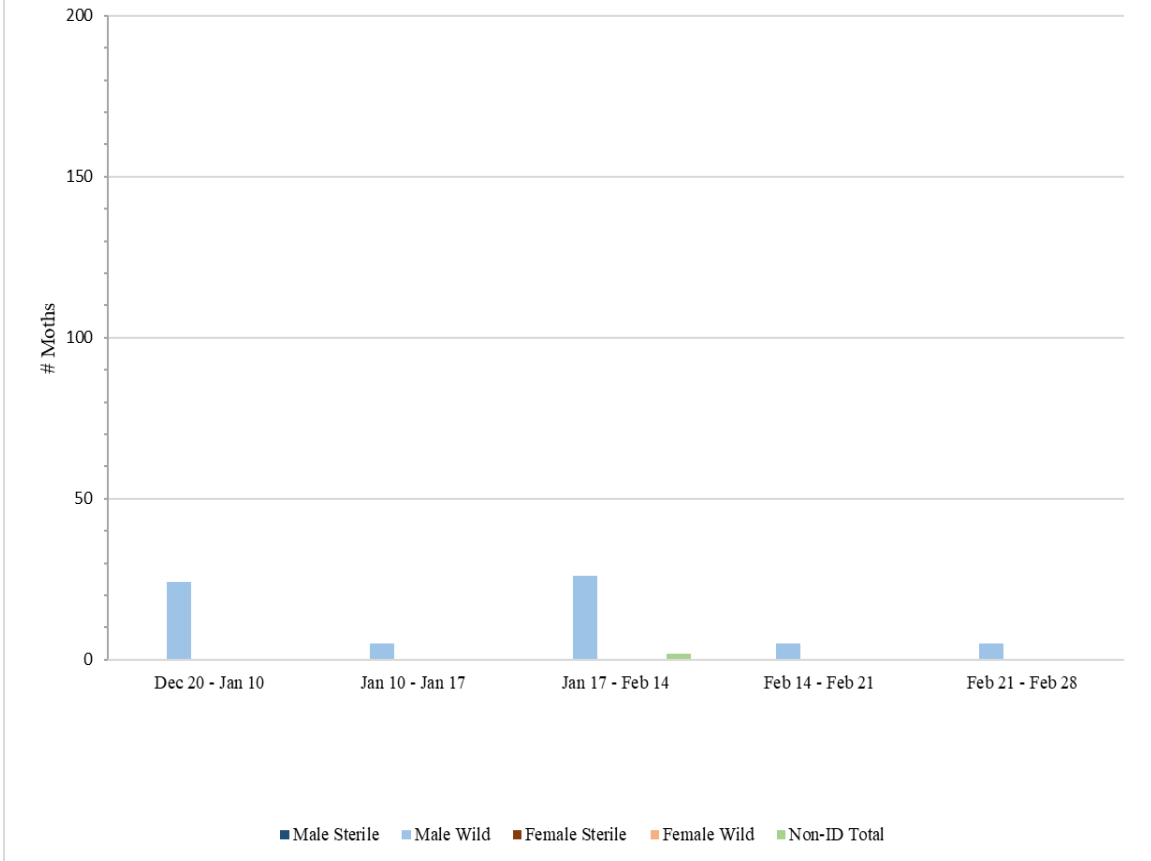


### Zone 3 – Almond Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 3 on Wednesday, February 28.

<b>Zone 3 - Almond</b>								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
<sup>1</sup> Dec 20 – Jan 10	0	0	24	24	0	0	0	0
Jan 10 – Jan 17	0	0	5	5	0	0	0	0
<sup>2</sup> Jan 17 – Feb 14	0	0	26	26	0	0	0	2
Feb 14 – Feb 21	0	0	5	5	0	0	0	0
<b>Feb 21 – Feb 28</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<sup>1</sup> No traps were serviced in Zone 3 during the weeks of December 29 and January 5 due to excessive rain and muddy conditions preventing access								
<sup>2</sup> No traps were serviced in Zone 3 during the weeks of January 26 and February 9 due to excessive rain and muddy conditions preventing access; No traps were serviced in Zone 3 during the week of February 2 due to pesticide applications on site								

### Zone 3 - Almond Orchard - Pheromone/PPO Baited Traps

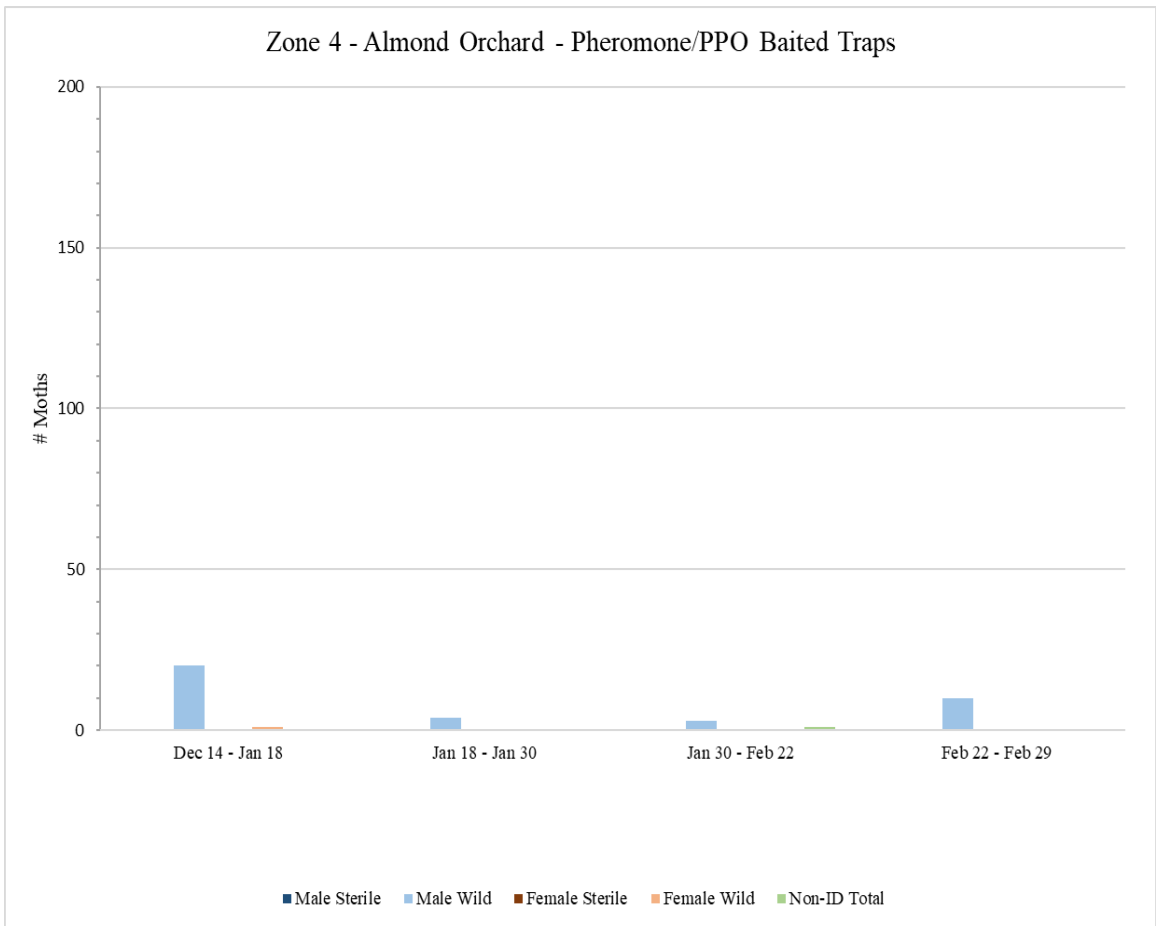




## Zone 4 – Almond Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 4 on Thursday, February 29.

<b>Zone 4 - Almond</b>								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
<sup>1</sup> Dec 14 – Jan 18	0	0	20	20	0	1	1	0
<sup>2</sup> Jan 18 – Jan 30	0	0	4	4	0	0	0	0
<sup>3</sup> Jan 30 – Feb 22	0	0	3	3	0	0	0	1
<b>Feb 22 – Feb 29</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<sup>1</sup> No traps were serviced in Zone 4 during the weeks of December 22, December 29, January 5, and January 12 due to excessive rain and muddy conditions preventing access								
<sup>2</sup> No traps were serviced in Zone 4 during the week of January 26 due to excessive rain and muddy conditions preventing access								
<sup>3</sup> No traps were serviced in Zone 4 during the weeks of February 9 and February 16 due to excessive rain and muddy conditions preventing access								

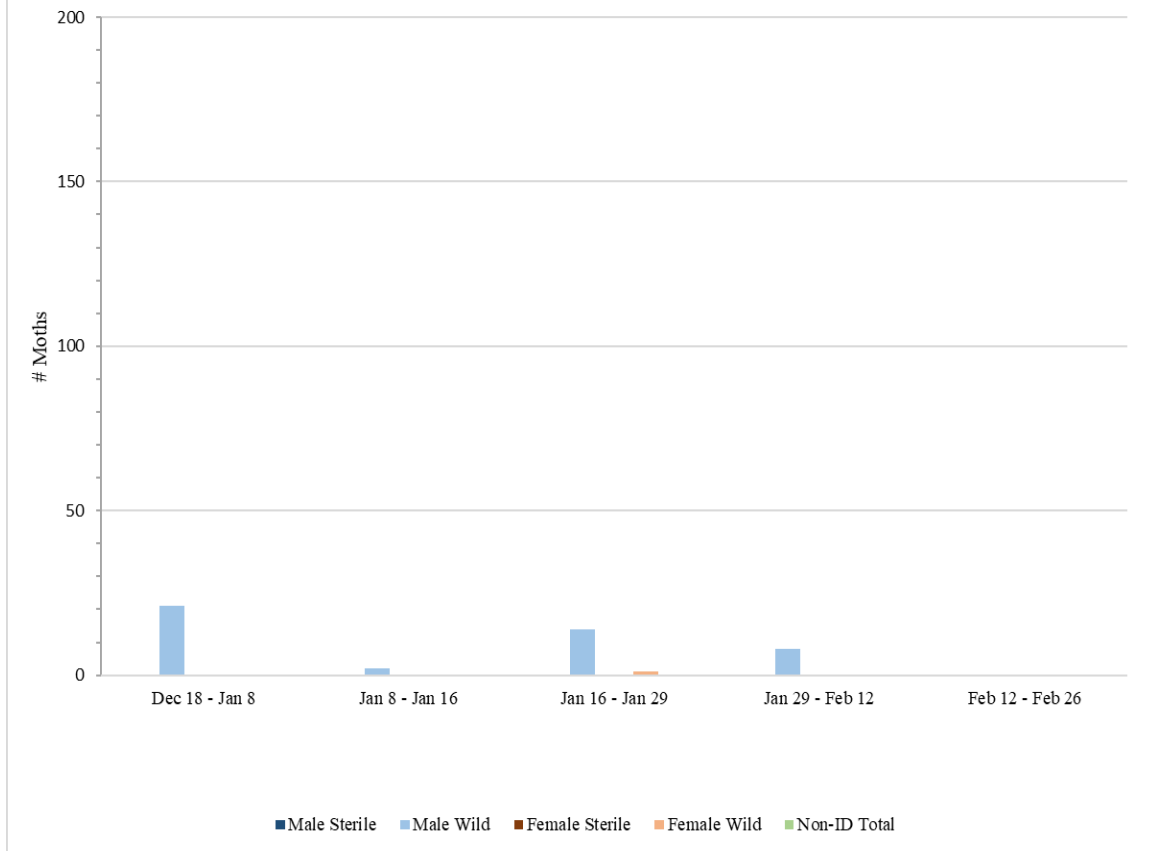


## Zone 5 – Pistachio Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 5 on Monday, February 26.

<b>Zone 5 - Pistachio</b>								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
<sup>1</sup> Dec 18 – Jan 8	0	0	21	21	0	0	0	0
Jan 8 – Jan 16	0	0	2	2	0	0	0	0
<sup>2</sup> Jan 16 – Jan 29	0	0	14	14	0	1	1	0
<sup>3</sup> Jan 29 – Feb 12	0	0	8	8	0	0	0	0
<sup>4</sup> <b>Feb 12 – Feb 26</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<sup>1</sup> No traps were serviced in Zone 5 during the weeks of December 29 and January 5 due to excessive rain and muddy conditions preventing access								
<sup>2</sup> No traps were serviced in Zone 5 during the week of January 26 due to excessive rain and muddy conditions preventing access								
<sup>3</sup> No traps were serviced in Zone 5 during the week of February 9 due to excessive rain and muddy conditions preventing access								
<sup>4</sup> No traps were serviced in Zone 5 during the week of February 23 due to excessive rain and muddy conditions preventing access								

### Zone 5 - Pistachio Orchard - Pheromone/PPO Baited Traps

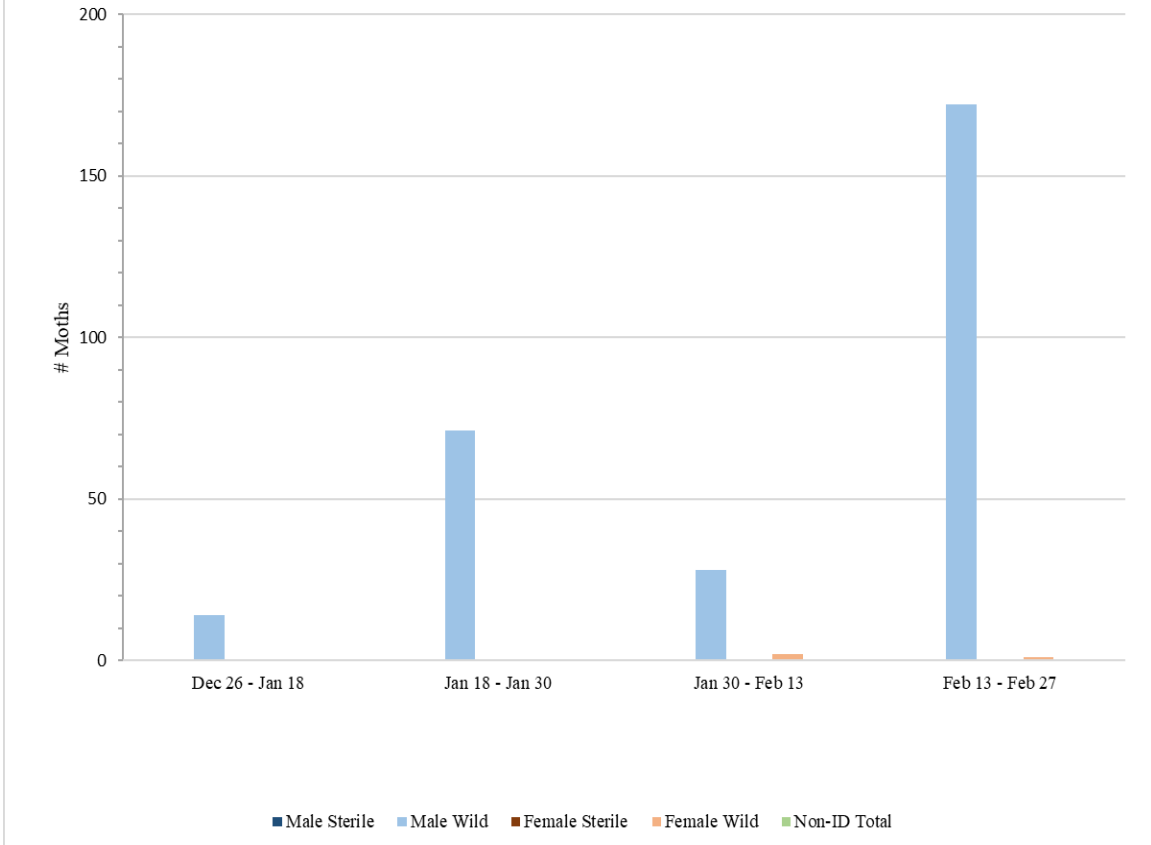


## Zone 6 – Pistachio Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 6 on Tuesday, February 27.

<b>Zone 6 - Pistachio</b>								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
<sup>1</sup> Dec 26 – Jan 18	0	0	14	14	0	0	0	0
<sup>2</sup> Jan 18 – Jan 30	0	0	71	71	0	0	0	0
<sup>3</sup> Jan 30 – Feb 13	0	0	28	28	0	2	2	0
<sup>4</sup> <b>Feb 13 – Feb 27</b>	<b>0</b>	<b>0</b>	<b>172</b>	<b>172</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>
<sup>1</sup> No traps were serviced in Zone 6 during the weeks of January 5 and January 12 due to excessive rain and muddy conditions preventing access								
<sup>2</sup> No traps were serviced in Zone 6 during the week of January 26 due to excessive rain and muddy conditions preventing access								
<sup>3</sup> No traps were serviced in Zone 6 during the week of February 9 due to excessive rain and muddy conditions preventing access								
<sup>4</sup> No traps were serviced in Zone 6 during the week of February 23 due to excessive rain and muddy conditions preventing access								

Zone 6 - Pistachio Orchard - Phoromone/PPO Baited Traps

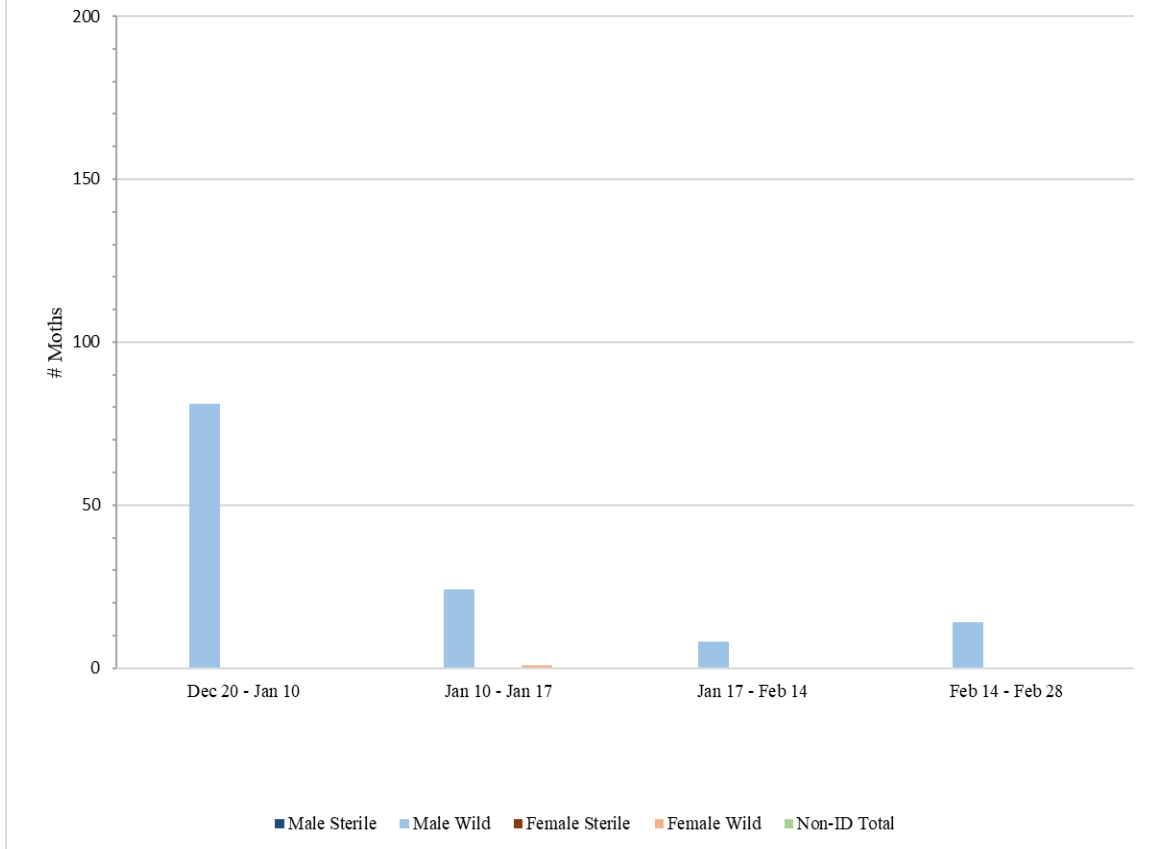


**Zone 7 – Almond Orchard**

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 7 on Wednesday, February 28.

<b>Zone 7 - Almond</b>								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
<sup>1</sup> Dec 20 – Jan 10	0	0	81	81	0	0	0	0
Jan 10 – Jan 17	0	0	24	24	0	1	1	0
<sup>2</sup> Jan 17 – Feb 14	0	0	8	8	0	0	0	0
<sup>3</sup> <b>Feb 14 – Feb 28</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<sup>1</sup> No traps were serviced in Zone 7 during the weeks of December 29 and January 5 due to excessive rain and muddy conditions preventing access								
<sup>2</sup> No traps were serviced in Zone 7 during the weeks of January 26 and February 9 due to excessive rain and muddy conditions preventing access; No traps were serviced in Zone 7 during the week of February 2 due to pesticide applications on site								
<sup>3</sup> No traps were serviced in Zone 7 during the week of February 23 due to excessive rain and muddy conditions preventing access								

### Zone 7 - Almond Orchard - Pheromone/PPO Baited Traps





## Zone 8 – Almond Orchard

No traps were collected from Zone 8 during the week of March 1 due to pesticide applications on site.

<b>Zone 8 - Almond</b>								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
<sup>1</sup> Dec 14 – Jan 11	0	0	16	16	0	0	0	0
Jan 11 – Jan 18	0	0	3	3	0	0	0	0
<sup>2</sup> Jan 18 – Jan 31	0	0	6	6	0	0	0	0
<sup>3</sup> Jan 31 – Feb 22	0	0	2	2	0	0	0	0
<sup>4</sup> <b>Feb 22 -</b>								
<sup>1</sup> No traps were serviced in Zone 8 during the weeks of December 22, December 29, and January 5 due to excessive rain and muddy conditions preventing access								
<sup>2</sup> No traps were serviced in Zone 8 during the week of January 26 due to excessive rain and muddy conditions preventing access								
<sup>3</sup> No traps were serviced in Zone 8 during the weeks of February 9 and February 16 due to excessive rain and muddy conditions preventing access								
<sup>4</sup> <b>No traps were serviced in Zone 8 during the week of March 1 due to pesticide applications on site</b>								

### Zone 8 - Almond Orchard - Pheromone/PPO Baited Traps

