



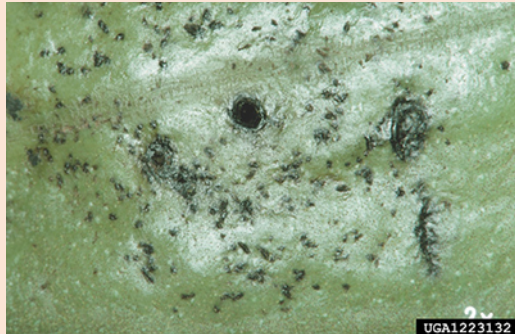
Western Pecan Weevil Update
Pecan Weevil Eradication in New Mexico
Emily Fricke – Program Specialist - NMDA

Pecan Weevil – Additional basic biology info

- Start emerging from soil in late July/early August.
- Spray when nuts are finished with water stage and entering dough/gel stage.
- Do not fly far if food source is near, but wind etc. may move them short distances at least across streets, etc.
- Can look for oviposition marks on shucks during this emergence time.
- The larvae is a fat, thick grub with a red cap and is about a 1/4 inch long. In theory once they have exited nut there is no nut meat left.
- July through October peak emergence time.
 - However, larvae were found early January of 2017 and as late as early March 2017 in SE NM (although some pecans may have come from Texas.)



Found August 2018
Emily Fricke - NMDA



UGA1223132

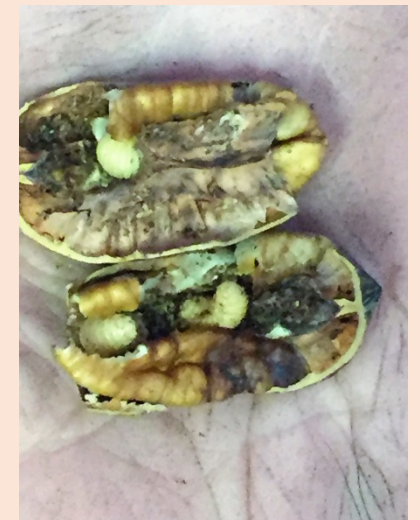
Pecan weevil feeding damage on a pecan nut shuck
(Jerry A. Payne, USDA Agricultural Research Service, Bugwood.org).



Jane Breen Pierce New Mexico State University
Found January 2017



Found January 2017 – Emily Fricke - NMDA



Gary Beverage, CPS
Found March 2017

Pecan Weevil



Found December 2018 - Emily Fricke - NMDA



Found December 2016 – Emily Fricke - NMDA

NOT Pecan Weevil

Pecan nut casebearer damage



Patricia Monk, New Mexico State University

Bird Damage



Patricia Monk, New Mexico State University



Patricia Monk, New Mexico State University

Pecan Weevil Finds 2018-2019 Harvest Season

- Cannot always trace finds back to their original location at cleaning plants or buying stations.
- Could not find the new infested residential areas to treat.
- Found and confirmed in at **LEAST 6** commercial orchards, throughout the infested counties.

2018-2019 Harvest Season				
County	Original Locations	PW Finds	New Locations - Pecan Weevil Finds	Total Weevil Finds
Chaves			4	2 6
Curry			1	0 1
Eddy			7	3 10
Lea			6	5 11
Otero			0	1 1
Total			18	11 29



Found December 2018



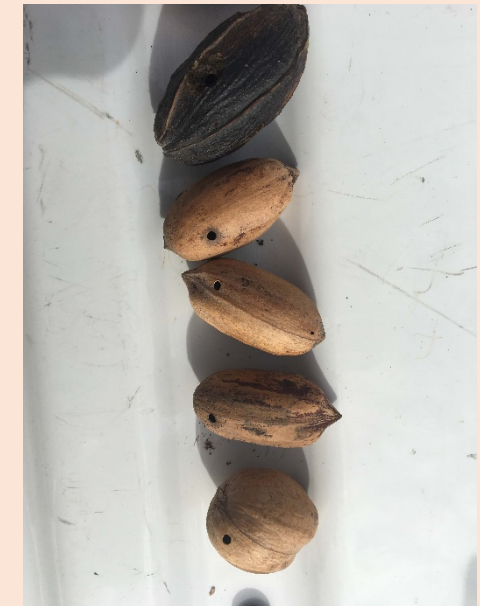
Found November 2017



Found January 2017



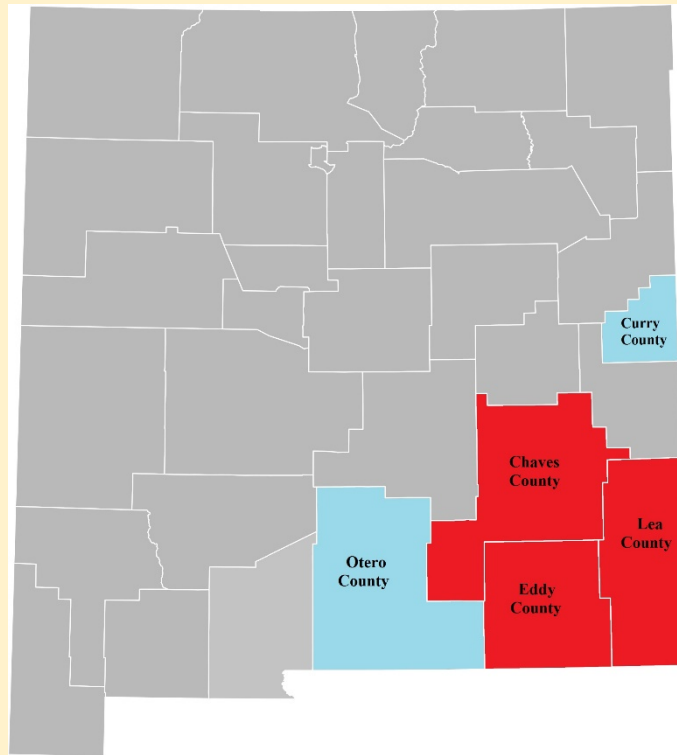
Found December 2016



Found January 2018

Pecan Weevil Distribution

New Mexico Pecan Weevil Distribution

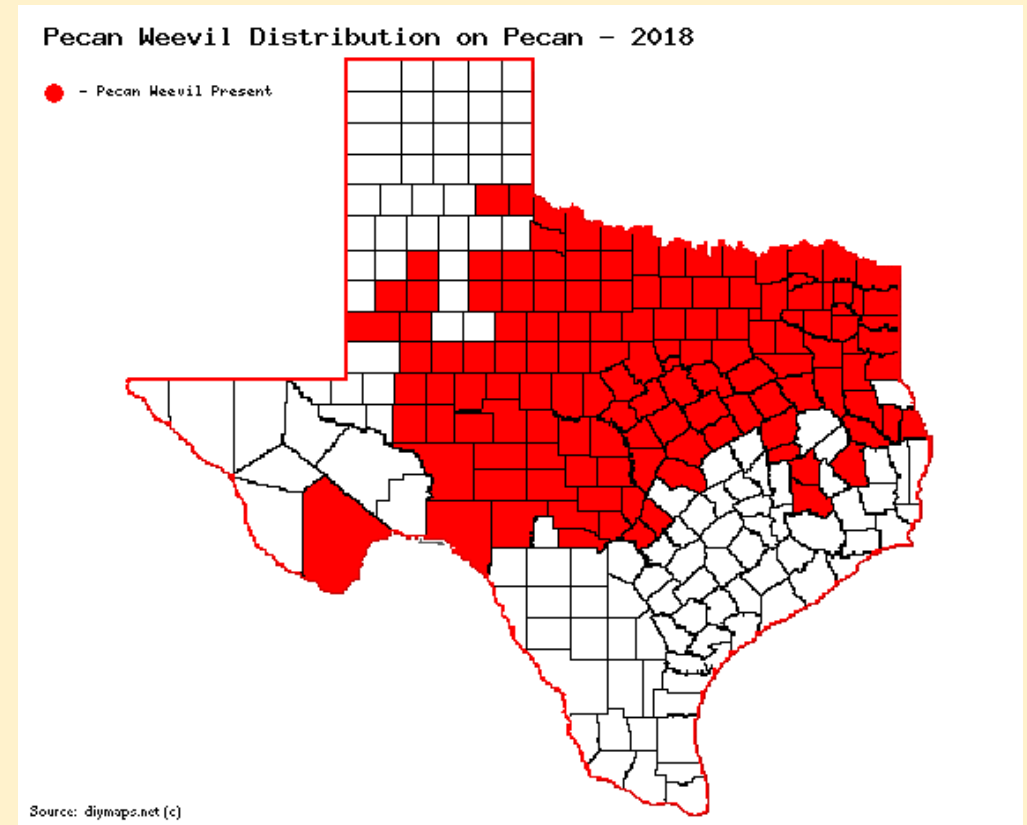


- Chaves, Eddy, and Lea county infested and quarantined.

- Curry county removed from permanent interior quarantine, 1 residential property.

- PW infestation confirmed in Otero County in 2018-2019 harvest season.

Texas Pecan Weevil Distribution



Map updated by Bill Ree of Texas A&M Agrilife Extension

- Officially found in 132 of 254 Texas counties.

- Texas does not allow pecans from the rest of Texas or quarantined NM counties into El Paso, Hudspeth, Culbertson, Jeff Davis, or Presidio counties.

Pecan Inspections

- Approximately 247 cleaning plant and buying station inspections performed this harvest season on eastern side of the state.
- Approximately 397 cleaning plant and buying station inspections performed in Dona Ana County/western side of state.
- Visit cleaning plants and buying stations on a weekly basis for about an hour at a time.



Permanent Interior Pecan Quarantine

- Began November 1st, 2018

What is different:

- Curry county was removed.
- Sunset clause – quarantine could end in 2023.
- Buyers records requirement removed as we now have the Buyers Licensure Act implemented.

What remains the same:

- Treatment options primarily cold storage – 0 degrees Fahrenheit for 7 consecutive days.
- Pecans transported out of quarantined counties must be shipped in super sacks in enclosed containers and go directly to cold storage with compliance agreement.
- Three rice hoppers from Valley Cold Storage are certified by NMDA.
- Valley Cold Storage is primary cold storage facility.
- Still no significant cold storage on eastern side.
- Reefer trailers often do not maintain the 0 degrees for 7 consecutive days.



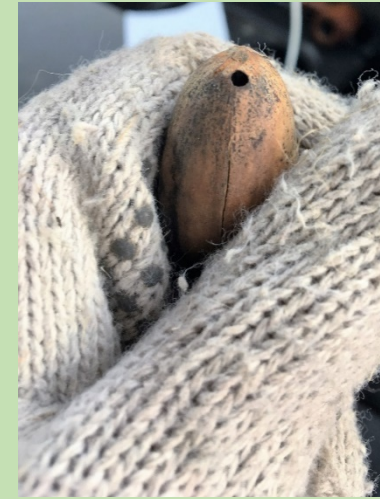
Found November 2017 – Emily Fricke - NMDA



Found August 2018 – Emily Fricke – NMDA

Pecan Buyers Licensure Rule

- Began November 1st, 2018.
- People had about 60 days to comply – started enforcement in January 2019.
- Require all pecan buyers, brokers, accumulators, and shellers to be licensed - \$300 fee.
- Stringent records requirement.
- Goal of rule: cut down on theft of pecans and help NMDA trace pecan weevil finds back to original location.
- Moderate success with goal – lower price for pecans and more regulation seemed to cut down on number of pecan buyers present this season.
- Repercussions for non-compliance: can be fined \$250 a day every day that do not comply – misdemeanor offense.



Emily Fricke - NMDA



Bill Segura - NMDA



USDA – agfax.com



Miguel Gutierrez Jr./ Kut

Shipping Restrictions



- AZ exterior quarantine for whole state of NM.
- Arizona does not allow used pecan equipment to leave NM without fumigation, or steam cleaning and inspection.
 - AZ concerned with PNC and PW.
 - Fumigation is required for equipment as it is often not clean enough.
 - One licensed fumigator in region is able to do the work out of El Paso.
- Texas does not allow pecans from the rest of Texas or quarantined NM counties into El Paso, Hudspeth, Culbertson, Jeff Davis, or Presidio counties.
- Mexico requires all NM pecans to be fumigated at the border.
 - Pecans still not allowed from Otero county.
- El Paso CBP requires bill of sale instead of certificate of origin.
 - Nuts being passed off from other places and not original location.

Adult Pecan Weevil Trapping 2018

- Trapped at only 7 properties in Chaves and Eddy county, 15 traps total.
- One property, in 2 traps found 50-80 pecan weevil every 2-5 days.
 - Traps only catch maybe $\frac{1}{4}$ of what is emerging.
- Over 370 adults captured in pecan weevil traps, August-October.
- Peak emergence in August.
- Some pecan weevil collected alive before treatment for research.
 - Transported safely with compliance agreements to quarantined facility.



Pecan Weevil Treatment

- Contractors treated in residential areas in Roswell, Carlsbad, and Artesia.
- Treated 3-5 times with liquid Sevin.
 - Treat 15-20 feet of tree - lower branches, trunk, and sometimes ground.
 - 3 treatments is only management, and not sufficient for eradication.
- Can use bifenthrin granule for larvae emerging from nut and entering the ground.
- Spray every 10 days approximately and stop at shuck split.
- Commercially can use synthetic pyrethroids and alternate with Sevin with air blast sprayer.
- Approximate cost to eradicate \$100/acre.

Residential Properties Sprayed for Pecan Weevil - 2018	
County	
Chaves	5
Curry	1
Eddy	42
	PW management/eradication plan is being developed
Lea	
Total	48



Photo: Bill Ree – Texas A&M Agrilife Extension



Found August 2018 – Emily Fricke - NMDA



Future Recommendations

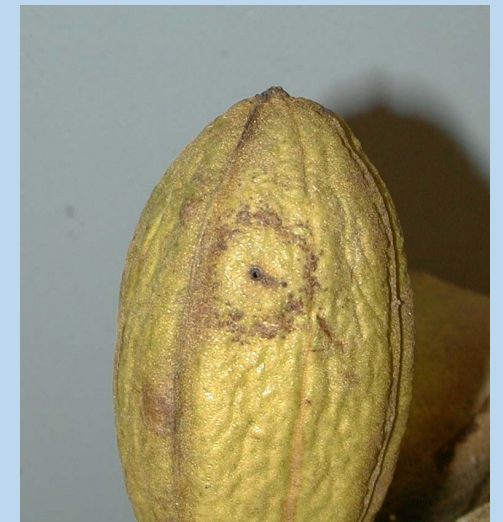
- Move treatments up a week due to August peak emergence.
- Adults located higher in canopy where we cannot treat.
- Find different pesticide that is more effective than Sevin.
 - Restrictions on synthetic pyrethroids if want to use in residential setting on trees that bear fruit or nuts.
- Contractors must spray a minimum of 4 times.
 - Stricter contracts or new contractors.
- More extensive trapping program and traps up by late July.
- Increase buffer zones if funds allow – only spraying infested properties with no buffer zone in some areas.
- Eradication in a strict sense with pest's life cycle would mean ZERO pecan weevil evidence found for 3 consecutive years.



Found August 2018 – Emily Fricke - NMDA



Found December 2018
Emily Fricke - NMDA



Tracking marks

Photo: Bill Ree – Texas A&M Agrilife Extension

Future Recommendations and Treatment

- Have additional funding allocated to pecan weevil treatment from NM legislature in 2018 - \$250,000/year.
- USDA APHIS will never get involved with this eradication as pest is native to the US.
- Why ground treatments won't work:
 - Ground treatments not really done in pecans – off label.
 - Larvae can be 6 inches down in soil, to a foot or more – won't penetrate soil that far.
 - Become pupae that are quiescent stage and not metabolizing.
 - Cannot fumigate the soil without killing the tree.

Larva



UGA1235220

Clemson University, USDA Cooperative Extension Slide Series, Bugwood.org

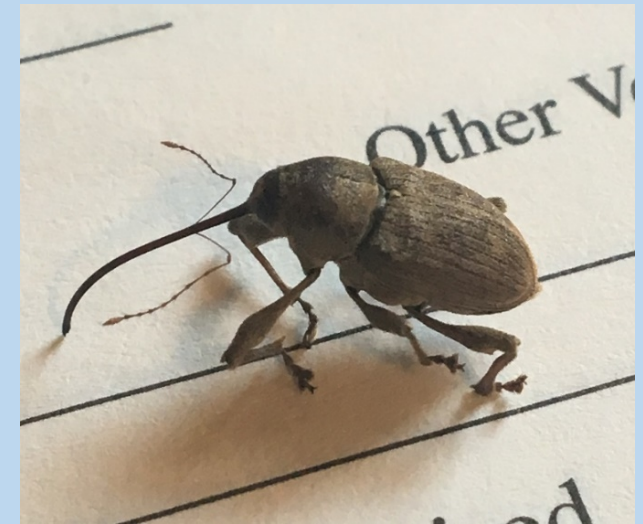
Pupa



UGA1223003

Louis Tedders, USDA Agricultural Research Service, Bugwood.org

Adult beetle



Found August 2018 – Emily Fricke - NMDA

Pecan Weevil Risks

- Per the quarantine equipment, super sacks, trees in soil, trash, and other regulated items **cannot** go west without inspection or certified treatment.

- Equipment like harvesters and shakers, etc. can be hard to thoroughly clean and inspect.

- Orchard owners often harvest and clean for smaller orchards, or in town residences that are not inspected as often or at all.

- Some buy residential pecans and store possibly infested pecans on orchard property.
 - Nuts could be mixed – orchard and residential.

- Infested orchards and multiple residential areas in all three quarantined counties, residence in Curry county, and now found in Otero County.

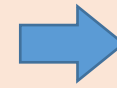
- Some may not have treated for PW even if have known infestation.

- Transporting equipment in from TX – TX will not inspect or issue certificates.



More Risk Factors

- Larvae can still be present in shell (no exit hole) as late as March.
- Homeowners, buyers, etc. break rules and bring pecans west without being contained properly.
- Pecans do not go to cold storage
- Unapproved hoppers used.
- Disposing of nut trash and infested material appropriately.
- Eradication long process due to pecan weevil life cycle – 10+ years.



Found March 2017 – Gary Beverage



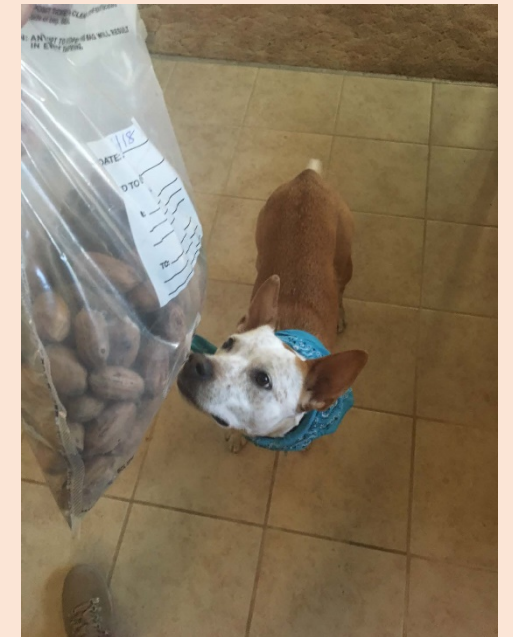
Collected November 2018 – Emily Fricke - NMDA



Collected December 2018 Emily Fricke - NMDA



Collected December 2018 - Emily Fricke - NMDA



Questions?

Thank you to everyone at NMDA in the Entomology and Nursery Department for their work and support the last 2.5 years. Also, Gary Beverage of Ag. Applications, Western Pecan Growers Association, our local extension agents, pest control contractors who participated in the treatment program, along with many growers/industry leaders throughout NM who have supported NMDA and lobbied for various pecan bills that help fund these eradication efforts.



Found August 2018 - Emily Fricke - NMDA



The ever popular, Mr. Gary Beverage and Mr. Brad Lewis

