NEW MEXICO

FOREST HEALTH CONDITIONS

ON STATE AND PRIVATE LANDS

2019

Red band needle blight, Philmont Scout Ranch

ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT

FORESTRY DIVISION

TOP FOREST HEALTH ISSUES ON STATE AND PRIVATE LANDS

Produced by the Forest Health Program of the New Mexico Forestry Division

TOP 3 MORTALITY AGENTS[1]

1. Piñon ips (*Ips confusus*)
2. Spruce beetle (*Dendroctonus rufipennis*)
3. Douglas-fir beetle (*Dendroctonus pseudotsugae*)

Piñon ips

TOP 3 DEFOLIATION AGENTS[1]

1. Western spruce budworm (*Choristoneura freemani)*
2. Ponderosa needleminer (*Coleotechnites ponderosae*)
3. Piñon needle scale (*Matsucoccus acalyptus)*

Western spruce budworm

[1]Reported as acres mapped with damage

FOREST HEALTH SUMMARY FOR STATE AND PRIVATE LANDS

BARK BEETLES

Bark beetle activity on state and private lands in 2019 decreased in ponderosa, mixed conifer, and spruce-fir forests (Fig. 1). However, piñon ips-induced mortality of piñon increased. Most of the piñon mortality occurred north of Grants and Gallup, NM, an area experiencing drought conditions. Tree mortality caused by bark beetles on state and private lands totaled ~9000 acres or 4% of the total of all land ownership types. The decrease in bark beetle activity in ponderosa, mixed conifer, and spruce-fir forests was likely due to increased precipitation during the 2018/2019 winter and 2019 spring seasons. Acres with bark beetle-induced tree mortality in 2019 was the lowest since 2010 (Fig. 2).

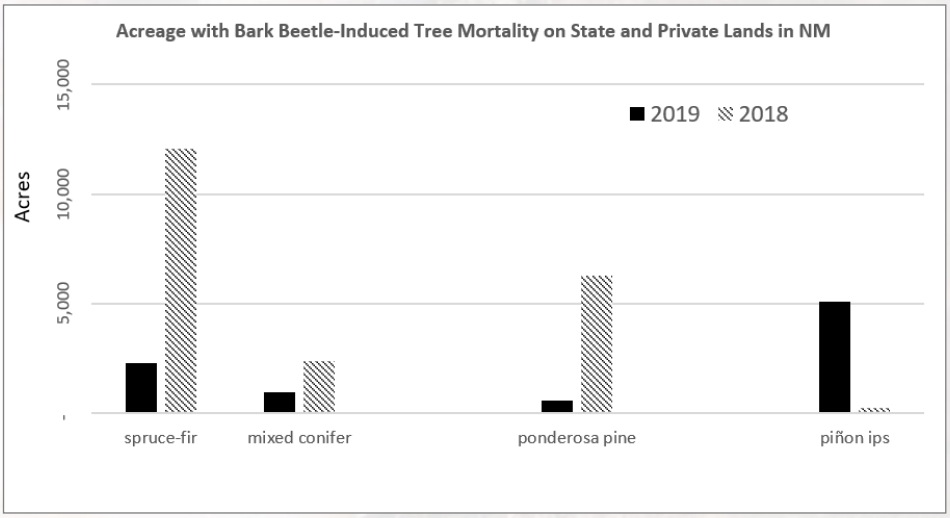


Fig. 1 Comparison of acres with bark beetle–induced tree mortality in spruce-fir, mixed conifer, ponderosa, and piñon forests and woodlands on state and private lands in 2018 and 2019.

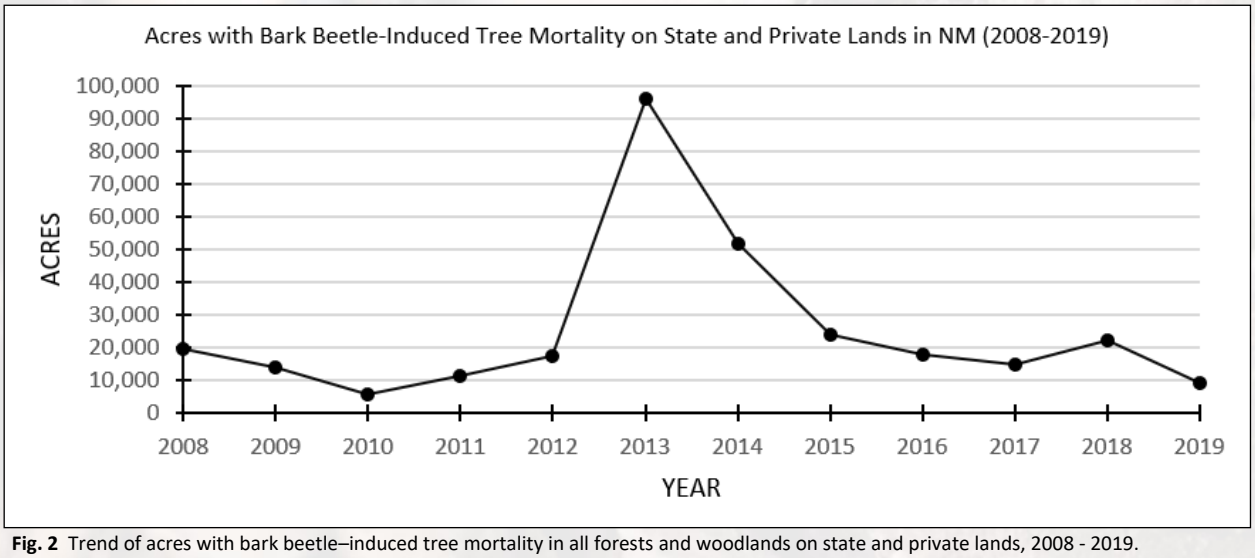


Fig. 2 Trend of acres with bark beetle–induced tree mortality in all forests and woodlands on state and private lands, 2008 - 2019.

WESTERN SPRUCE BUDWORM

(*Choristoneura freemani*)

In 2019, western spruce budworm (WSBW) was detected on ~60,000 acres on state and private lands and was the most damaging defoliation agent in New Mexico. The number of acres on state and private lands with WSBW feeding damage increased 80% between the 2018 and 2019 aerial surveys, in part due to increased precipitation in the spring of 2019. Western spruce budworm usually is the most destructive defoliator in the western U.S. and New Mexico is no exception. The overstocked mixed conifer forests of New Mexico have led to and sustained high populations of WSBW for the last decade. However, the southern portion of the state generally does not have large-scale WSBW events that is common north of Interstate 40.

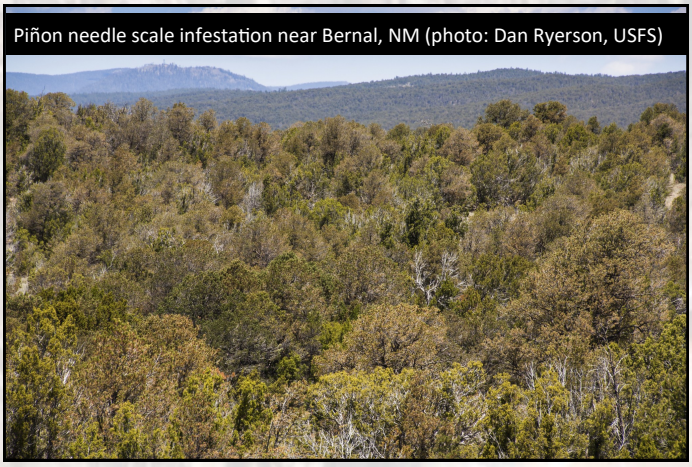
Western spruce budworm feeding damage, Santa Fe NF

Needleminer feeding damage, Vermejo Ranch

PONDEROSA NEEDLEMINER

(*Coleotechnites ponderosae*)

The infestation of ponderosa pine needleminer in and around the Vermejo Ranch in northern New Mexico continued for a second year and impacted ~47,000 acres. However, acres with needleminer activity decreased 18,600 acres since 2018. To date, no direct mortality has been attributed to the needleminers' feeding, but trees could be stressed from the feeding activity and more vulnerable to bark beetle attack or drought conditions. Reports of needleminer activity in the same approximate area during the 1980's and 1990's suggest the outbreak may end in the next few years.


Piñon needle scale infestation near Bernal, NM (photo: Dan Ryerson, USFS)

PIÑON NEEDLE SCALE

(*Matsucoccus acalyptus*)

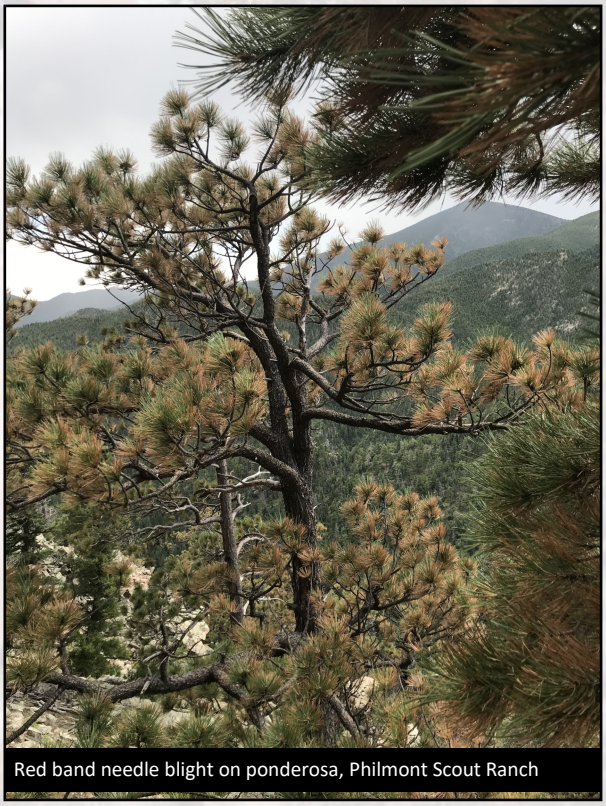
Piñon needle scale is a wide-spread, chronic pest in New Mexico. This sap sucking insect stresses trees, but rarely does it lead to direct tree mortality. In 2019, 24,500 acres were detected with piñon needle scale infestations mostly on the Las Vegas District. Piñon needle scale was hard to detect during aerial surveys, so a special ground survey was conducted to document the increased activity. Increased activity was due, in part, to mild winter temperatures and increased precipitation during the winter of 2018/2019 and spring 2019.

NOTABLE FOREST HEALTH ISSUE IN 2019

RED BAND NEEDLE BLIGHT

(*Dothistroma septosporum*)

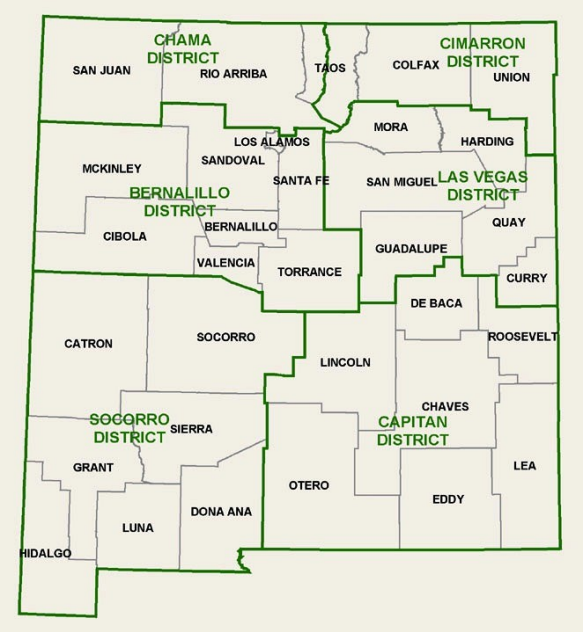
Large-scale red band needle blight (RBNB) infections are uncommon in New Mexico; however, due to increased levels of rainfall and humidity in the spring of 2019, a few large areas of RBNB (totaling 13,000 acres) were detected on the Philmont Scout Ranch in the Cimarron District. A ground-check of the area found both ponderosa and limber pine needles were diseased. No direct mortality from RBNB was noted. These areas on the Philmont Scout Ranch are expected to disappear unless spring rains in 2020 are higher than normal.


Red band needle blight on ponderosa, Philmont Scout Ranch

SUMMARY OF FOREST HEALTH ISSUES ON STATE AND PRIVATE LANDS BY NM STATE FORESTRY DISTRICT

The health of state and private forests and woodlands in New Mexico State Forestry Division's six districts are monitored annually during aerial detection surveys, site visits, and ground surveys. Unfortunately, not every single acre of forests and woodlands in each district are monitored, but those that are monitored are consistently surveyed each year. This helps the NM Forest Health Specialist monitor yearly pest trends, which allows the NM Forest Health Specialist to notify district personnel when insects and disease issues increase and may impact landowners. Below is a summary of forest and woodland health issues for each NM State Forestry District.

Note: Acres reported below contain a certain percentage of trees with damage present, i.e. not every tree in each acre are killed or defoliated.



BERNALILLO DISTRICT (reported as acres *with damage*)

	Mortality Agent				Defoliation Agent		
County	Ponderosa Pine Bark Beetles	Piñon Ips	Douglas-fir beetle	Juniper Bark Beetles	Piñon Needle Scale	Western Spruce Budworm	Western Tent Caterpillar
Bernalillo	60				2880		
Cibola	40		20			410	250
McKinley	10	1460		40	240		
Sandoval	60	860	40			30	
Santa Fe	10				300		
Torrance	190				3430		

CAPITAN DISTRICT (reported as acres *with damage*)

	Mortality Agent				Defoliation Agent		
County	Ponderosa Pine Bark Beetles	Piñon Ips	Douglas-fir beetle	Juniper Bark Beetles	Piñon Needle Scale	Western Spruce Budworm	Western Tent Caterpillar
Otero					10		

CHAMA DISTRICT (reported as acres *with damage)*

	Mortality Agent					Defoliation Agent	
County	Ponderosa Pine Bark Beetles	Piñon Ips	Douglas-fir beetle	Western Balsam Bark Beetle	Spruce Beetle	Western Spruce Budworm	Western Tent Caterpillar
Rio Arriba	30	1320	110		1550	11750	560
San Juan		1310					
Taos	20	70	460	350	250	14700	460

CIMARRON DISTRICT (reported as acres *with damage)*

	Mortality Agent					Defoliation Agent			
County	Ponderosa Pine Bark Beetles	Piñon Ips	Douglas-fir beetle	Western Balsam Bark Beetle	Spruce Beetle	Western Spruce Budworm	Piñon Nee-dle Scale	Ponderosa Pine Needle-miner	Western Tent Cater-pillar
Colfax	50		170		1550	27500	1190	46920	2120
Taos	20	70	460	350	250	14700			460

LAS VEGAS DISTRICT (reported as acres *with damage)*

	Mortality Agent			Defoliation Agent			
County	Spruce Beetle	Fir Engraver	Douglas-fir beetle	Piñon Needle Scale	Western Spruce Budworm	Ponderosa Pine Needle-miner	Western Tent Caterpillar
Mora	140			110	4890	450	210
San Miguel		60	90	14460	10		90

SOCORRO DISTRICT (reported as acres *with damage)*

	Mortality Agent					Defoliation Agent		
County	Ponderosa Pine Bark Beetles	Piñon Ips	Fir Engraver	Juniper Bark Beetles/ Drought	Spruce Beetle	Piñon Needle Scale	Pondero-sa Pine Sawfly	Western Tent Cater-pillar
Catron	40	30	10		1550	930	470	20
Grant	20							
Sierra				60				
Socorro							30	

2019 FOREST MORTALITY AND DEFOLIATION TABLE FOR STATE AND PRIVATE LANDS

Aerial detection survey results for forest insect and disease activity on state and private lands in New Mexico in 2018 and 2019

Damage Type		2019 acres	2018 acres	% change[1]	% of all lands[2]
DEFOLIATION					
by host[3]					
	aspen	3,700	2,700	37	21
by agent					
	western spruce budworm	59,290	32,870	80	32
	Janet's looper	40	100	-60	1
	Douglas-fir tussock moth	30	90	-67	2
	piñon needle scale	24,530	180	13,528	54
	pine sawfly	520	180	189	35
	needleminer	47,040	65,700	-28	100
Defoliation Total		**135,150**	**101,820**	**33**	**44**
MORTALITY					
by forest type[4]					
	spruce-fir	2,300	12,100	-81	9
	mixed conifer	960	2,380	-60	5
by host[3]					
	ponderosa pine	570	6,290	-91	1
	aspen	380	1,120	-66	51
by agent					
	piñon ips	5,110	250	1,944	11
Mortality Total		**9,320**	**22,140**	**-58**	**4**
OTHER					
	branch flagging (multiple hosts)	-	170	-100	0
	discoloration (mutiple hosts)	12,890	270	4,674	47
	dieback (multiple hosts)	240	5	4,700	21
Other Total		**13,130**	**445**	**2,851**	**45**
	Grand Total	**157,600**	**124,405**	**27**	**29**
	Total Area Mapped[5]	**124,660**	**83,810**	**49**	**22**

[1] (2019 acres – 2018 acres) / 2018 acres * 100
[2] State and private acres as a percentage of statewide acres
[3] Damage to a single tree species caused by multiple known agents that cannot be distinguished from the air
[4] Damage to multiple commingled tree species caused by known agents
[5] Areas may be mapped with >1 damage agent. The total area mapped represents the "footprint" of damage, with no multiple counting of acres; total values can reflect multiple counting

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NMSF Forest Health Website

USFS Forest Health Monitoring Website