SUMMARY OF AERIAL FOREST HEALTH SURVEY OBSERVATIONS

30 June - 6 July 2013

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AREAS FLOWN

Areas flown included the Sangre de Cristo and Culebra Ranges, (Reporting Areas [RAs] 10, 11, 12 & 15) a large portion of the Wet Mountains (RA 9) and the forested area between the eastern slopes of the Culebras and Spanish Peaks and I-25 (RA 12). Justin Backsen, USDA Forest Service R-2, accompanied me on Friday 5 July. The survey took 21.9 hours of flying time. Ground checks were made in several areas in the Culebra Range and east of the Spanish Peaks on 30 June and 6 July 2013. Approximately half of the grid portion of RA 12 could not be completed due to unfavorable weather.

HIGHLIGHTS OF OBSERVATIONS

BARK BEETLES

SPRUCE BEETLE – infestations increased significantly in high elevation Engelmann spruce forests in the Sangre de Cristo Range. On the western slope, infestations were detected from Mt. Zwischen, in areas not affected by the Medano fire, north to Hayden Pass. On the eastern slopes of the Sangres, spruce beetle damage was detected from Methodist Mountain south to Mt. Zwischen.

Spruce beetle damage also increased significantly in spruce forests in the Wet Mountains with infestations now present from Ophir Pass south to Greenhorn Peak. The Wet Mountain outbreak is believed to have been triggered by the blowdown event of 2007.

DOUGLAS-FIR BEETLE –Douglas-fir beetle activity continued in low elevation forests in Medano and Little Medano Creeks of the Great Sand Dunes National park and Preserve.

FIR ENGRAVER BEETLE – Increases in mortality of white fir by fir engraver beetle were observed in the following areas:

- East slopes of the Sangre de Cristo Range
- East slope of the Wet Mountains, especially in low elevation forests at the base of Greenhorn Mountain.
- North facing slopes of the Spanish Peaks not affected by the East Peak Fire.
- Low elevation forests in the Culebra Range, especially from Cucharas south to the NM border.

Increased fir engraver beetle activity is undoubtedly due to two successive years of below normal precipitation.

LIMBER PINE MORTALITY – Group kills of 25 – 100 faders were again detected in several drainages on the eastern face of the Sangre de Cristo Range including Big Cottonwood Creek, Little Cottonwood Creek, Wolf Creek and the South Prong of Hayden Creek. In 2013, similar damage was detected on the western slope of the Sangres in several canyons south of Hayden Pass. Causal agent is presumed to be mountain pine beetle.

PINYON PINE MORTALITY – A concentration of group kills of pinyon pine was detected east of I-25 from Walsenburg south to Trinidad. Heaviest damage presently occurs in the vicinity of Ludlow. Infestations are presently confined to the easternmost edges of the pinyon-juniper type. While the aerial signatures were more or less typical of pinyon ips, ground checks indicated that the damage was due to a combination of pinyon twig beetles, *Pityophthorus* spp. and pinyon ips. Trees attacked only by twig beetles suffered severe damage but still contained a few live branches. It appeared that the twig beetle attacks were predisposing trees to attack by pinyon ips.

DEFOLIATING INSECTS

WESTERN SPRUCE BUDWORM – Defoliation of Douglas-fir and white fir continued in portions of the Culebra and Sangre de Cristo Ranges and the southern Wet Mountains.

Defoliation was scattered on the eastern slope of the Sangres and significant top kill and tree mortality due to previous years of defoliation was evident in many areas. Heavy defoliation was once again seen on the eastern slopes of Big and Little Sheep Mountains, Silver Mountain and the north slope of Mt. Maestas. Defoliation is present on the western slope of the Sangres from Blanca Peak north to Hayden Pass. Infestations are present in low elevation Douglas-fir stands, typically on north facing slopes. North of Hayden Pass, defoliation is more scattered.

Infestations continued in the Culebra Range with heaviest and most extensive damage on the eastern slopes of the Range detected from Cucharas Pass south to the New Mexico line. Defoliation also occurred in low elevation Douglas-fir stands on the western slopes of the Culebra Range. Western spruce budworm defoliation occurred again on the south facing slopes of both East and West Spanish Peak.

In the Wet Mountains, defoliation by western spruce budworm again occurred from Saint Charles Mountain south to Greenhorn Peak on both the eastern and western slopes of the Range. Defoliation was seen for the first time in low elevation Douglas-fir stands in the Wet Valley in the vicinity of Antelope Mountain.

ASPEN DEFOLIATION – Defoliation of aspen forests in portions of the Culebra, Sangre de Cristo and Wet Mountains increased significantly in comparison with recent past years.

Defoliation continued in aspen stands in the North Fork of the Purgatory River where an outbreak has been underway since at least 2007. Ground checks on 30 June again confirmed that defoliation in this area was caused by western tent caterpillar. Feeding was complete and all of the population was in the pupal stage. Damage also occurred in neighboring drainages from Cucharas Creek south to Brown Creek. On the western slope of the Culebra Range, aspen defoliation was seen in several drainages with notably heavy damage detected in Cuchilla Alto and El Rito de Aban, tributaries of Culebra Creek.

Pockets of aspen defoliation were observed in many areas on the western slope of the Sangre de Cristo Range. An especially large and conspicuous area of defoliation occurred in the upper Sand Creek Basin and in Cotton Creek.

Area of aspen defoliation on the west slope of the Wet Mountains increased significantly in 2013 in comparison to 2012. At least half of the aspen stands from Dry Creek Canyon north the East Fork of Williams Creek suffered partial to complete defoliation.

Defoliation of aspen west of Lake San Isabel, first detected in 2011 continued in 2013. In 2012, ground checks established that defoliation was caused by large aspen tortrix.

LEAF ROLLER OF NEW MEXICO LOCUST - Defoliation and discoloration of New Mexico locust was observed adjacent to CO Highway 12 between the communities of La Veta and Cucharas during ground checks made on 30 June. Damage is caused by an as yet unidentified leaf roller of the family Tortricidae. Larvae appear to skeletonize foliage during the early instars and later tie leafs together with silken webs and continue feeding. Larvae are small (less than ½ inch

long) light green in color and with a shiny black head capsule and prothoracic shield. Aerial surveys on 5 July detected several large areas of defoliation attributed to this insect south and east of La Veta. Ground checks in Four Mile Canyon area, south of Walsenburg, on 6 July indicated that infestations and damage were also present in that area.

OTHER AGENTS

COTTONWOOD DECLINE AND MORTALITY - A large area of cottonwood decline and mortality was detected in a residential area several miles south of the Great Sand Dunes National Park and Preserve Visitor Center. Another area of cottonwood decline and mortality was mapped on lower Sand Creek at the northern edge of the Great Sand Dunes.

PONDEROSA PINE NEEDLE DISCOLORATION - Yellow-orange discoloration of ponderosa pine needles was detected over extensive areas east of the Spanish Peaks. From the air, damage was suggestive of ponderosa pine needle miner, which has been detected in the area several years ago. Ground checks in Four Mile Canyon indicated that damage was more typical of a pine needle cast disease. Symptoms tended to be confined to needles three years old and older. The cause of this condition is, at present, undetermined.

MORTALITY OF JUNIPER - Several pockets of dying juniper were seen during ground checks in Four Mile Canyon. Symptoms consisted of fading (pale yellow) foliage on all of a portion of the tree. Examination of several trees indicated that bark beetle attacks were not involved. Winter drying, due to high winds, was also ruled out as a causal factor because affected trees occurred under a range of conditions and restricted to exposed slopes. Cause of the condition is unknown but may be drought related.

BRANCH FLAGGING ON PONDEROSA PINE – Trees with dying branches were seen from the air in several locations north and east of the Spanish Peaks during the aerial survey. Ground checks on 6 July indicated that the cause of the flagging was rodent feeding on branches. Squirrels and other rodents are known to strip bark from many species of trees during dry periods in search of moisture.

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