CENTRAL ROCKY MOUNTAINS

By JOHN F. CHANSLER and WILMER F. BAILEY, Division of Timber Management

Denver, Colo.

Conditions in Brief

Forest insect damage in the central Rocky Mountains was the lowest in 5 years. The few significant problems centered around infestations of the Black Hills beetle, the Engelmann spruce beetle, and the spruce budworm. The Great Basin tent caterpillar, Douglas-fir tussock moth, and the tiger moth are in the Region, but have caused little economic damage to forest trees.

While losses to the Black Hills beetle were low on National Forest lands in the Black Hills, there were additional serious losses on some State and private land in the northern Black Hills. An abatement program was not attempted. Some reinfestation is occurring on some National Forest lands that border these private lands. Outbreaks on the San Juan and Shoshone National Forests, while of little economic importance in 1966, progressed to the point where serious outbreaks now seem likely.

Engelmann spruce beetle problems usually did not materialize despite much scattered spruce blowdown in 1965. A noteworthy exception exists on the Grand Mesa-Uncompahgre National Forest. Small infestations are associated with logging on the Medicine Bow, San Isabel, White River, and Rio Grande National Forests.

Moderate to heavy spruce budworm defoliation occurred on 80,000 acres of mixed-conifer forests in Colorado. Defoliation has been heavy in many areas during the past 3 years, but tree mortality or extensive killing of tops has not occurred.

Status of Insects

Black Hills beetle, *Dendroctonus ponderosae* Hopk. Ponderosa pine mortality on the Black Hills Forest was the lowest in several years. However, many trees continued to be killed on some State and private land in the northern Black Hills where no control work was done. Because of this situation, some reinfestation is occurring along the borders of previously treated forests. Control to correct this situation in two key areas is anticipated in 1967.

Ponderosa pine losses on the San Juan Forest in southwestern Colorado became more important as the infestation spread from inaccessible canyons to the surrounding mesas. While the infestation caused little damage in 1965, it is now threatening ponderosa pine on several thousand acres. Tree killing on the Front Range was generally low except for moderate losses in the Redfeather Lakes area of the Roosevelt National Forest. Elsewhere in Colorado, Black Hills beetle populations are low.

In Wyoming, Black Hills beetles killed small numbers of ponderosa pine on State and private lands, particularly in the northeast. The infestation on the Bighorn National Forest declined in 1966 and is no longer a problem.

An infestation in lodgepole and limber pine on the Lander District, Shoshone National Forest, bears watching. Tree losses were not heavy in 1966 but were greater than in 1965. Moderate mortality continued in scattered patches of noncommercial limber pine on the Wapiti and Clarks Fork Districts.

Engelmann spruce beetle, *Dendroctonus obesus* (Mann.). Engelmann spruce beetle damage was of no economic importance. Populations did not increase as expected as a result of the 1965 spruce blowdown, except on the Grand Mesa-Uncompahgre Forest east of Ridgeway, Colo. Here, control work is planned before the beetles emerge. A chemical control project will be necessary to reduce the beetle population in a small patch of down spruce on the Rio Grande Forest. Small infestations associated with logging and road construction on the Salida District, San Isabel Forest; Holy Cross District, White River Forest; and the Bow River District, Medicine Bow Forest are expected to be controlled in 1967.

Spruce budworm, *Choristoneura fumiferana* (Clem.). Infestations occur on 80,000 acres of mixed-conifer forest in Colorado. The largest and most continuous infestation (about 75 percent of total acreage) is east of the Sangre de Cristo Range on the San Isabel Forest. Here, defoliation has been heavy during the past 3 years, but permanent damage has not yet occurred. The remaining infested acreage consists of small, isolated, moderate outbreaks on the Rio Grande, San Juan, Gunnison, Grand Mesa-Uncompahgre, and

F–516031

The Black Hills beetle killed many ponderosa pines on private lands in the northern Black Hills.

Roosevelt National Forests. No suppression work is planned in 1967.

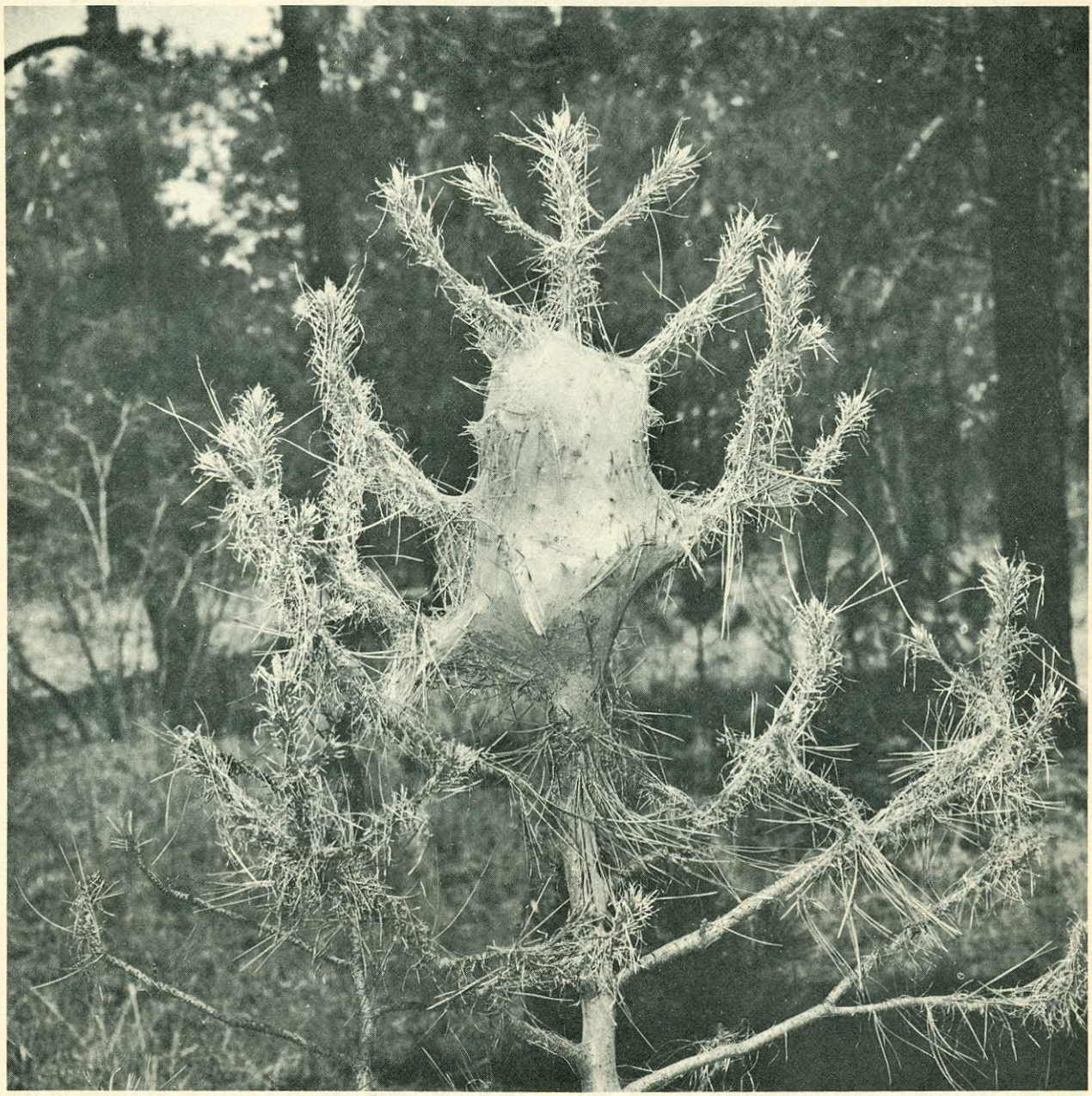
Douglas-fir tussock moth, *Hemerocampa pseudotsugata* McD., in 1965 seriously defoliated ornamental blue spruce in the small community of Monument, Colo. This infestation caused considerable alarm because of the tremendous popularity of blue spruce. Owners have been spraying the infested trees and have apparently stopped the infestation from spreading.

Tiger moth, *Halisidota ingens* Edws. In 1965 this pest of ponderosa and pinyon pines became abundant northwest of Colorado Springs, in the Black Forest. It was important mainly because it

was a nuisance to the residents in the area. Small-scale spraying programs by State and private individuals relieved the problem in some areas. However, the problem was not solved because many active larval colonies were located in the fall.

Great Basin tent caterpillar, *Malacosoma fragile* (Stretch). Caterpillar populations were unexpectedly low in the aspen stands in the Rio Grande Forest along the Colorado-New Mexico State line; they had caused severe defoliation in this area in 1965. A similar infestation collapse was recorded in the same area in 1960.

Douglas-fir beetle, *Dendroctonus pseudotsugae* Hopk. Populations remained endemic through



F–516029

Tiger moth, *Halisidota ingens* Edws., shown feeding on ponderosa pine, has been a problem for residents in the Black Forest, and area northeast of Colorado Springs, Colo.

1966 except for small infestations on the Gunnison and San Juan National Forests. These infestations have continued unchecked for several years because control is not justified.

Pine engraver, *Ips pini* (Say). Populations remained endemic throughout the Central Rocky Mountains. The pest was most commonly found on the San Juan and Grand Mesa-Uncompahgre Forests attacking the tops of overmature, weakened trees.

SOUTHWESTERN STATES [1]

By D. D. LUCHT, Division of Timber Management [2]

Albuquerque, N. Mex.

Conditions in Brief

The spruce budworm was the most important insect pest of Southwestern forests in 1966. It damaged one-half million acres of mixed conifer in southern and north central New Mexico. Low-volume malathion at 13 ounces per acre failed to suppress a rapidly increasing budworm population on 60,000 acres. The Douglas-fir tussock moth, inactive in the Region since 1961, became active in three old centers and in one new center. The new center in the city of Santa Fe was promptly controlled to prevent spread to the nearby Santa Fe National Forest. The white-fir needle miner remained active on 50,000 acres of white fir in northern Arizona. The southwestern pine tip moth injured 66,000 acres of natural regeneration and 2,000 acres of pine plantations in north central Arizona. An unidentified tussock moth, which severely stripped broadleaf trees in high-use recreation areas in southern New Mexico in 1965, was successfully controlled in 1966.

Three species of bark beetles—the Douglas-fir beetle, the Engelmann spruce beetle, and the Arizona five-spined ips—killed many trees in Arizona and central New Mexico. The Douglas-fir beetle was widely fatal throughout northern Arizona, while the Engelmann spruce beetle remained epidemic on Mt. Taylor in central New Mexico. In central Arizona, the Arizona five-spined ips killed several thousand pole-size ponderosa pines. This was a sudden increase in ips activity and tree mortality over 1965. Roundheaded pine beetle population is at its lowest level in several years. Several species of seed and cone insects caused heavy damage to coniferous seed and cone crops throughout New Mexico.

Cultural control was directed against the Engelmann spruce beetle, the Douglas-fir beetle, and the Arizona five-spined ips. A pilot test, using Thuricide 90 TS, had excellent results against the Nevada buck moth. Chemical control was very successful against the Douglas-fir tussock moth but proved unsuccessful against the spruce budworm. Pilot testing of a new method of bark beetle control, injection of cacodylic acid into infested trees, was highly successful in reducing broods of the Douglas-fir beetle, the roundheaded pine beetle, and the Black Hills beetle.

Status of Insects

Spruce budworm, *Choristoneura fumiferana* (Clem.). The spruce budworm continued as a major pest on 440,000 acres of mixed conifer throughout New Mexico. Of the four areas now active, only one, on the Carson National Forest east of Taos, increased. This, a 2-year-old infestation, intensified in and north of the 1966 treated area and spread from 50,000 to 80,000 acres. Control efforts, using low-volume malathion, were generally regarded as unsuccessful. The infestations in the other three areas either declined or remained static. The area of infestation on non-Federal lands near Chama and Cimarron decreased from 310,000 to 270,000 acres. In southern New Mexico, the infestation on the Gila National Forest collapsed, while that on the Lincoln National Forest remained static at 90,000 acres.

Douglas-fir tussock moth, *Hemerocampa pseudotsugata* McD. The Douglas-fir tussock moth is again active throughout central New Mexico and southern Arizona, after 5 years of quiescence. A new outbreak occurred on ornamental blue spruce, Douglas-fir, and white fir within the city of Santa Fe, N. Mex. Prompt control action was taken by city, State, and Federal agencies to prevent spread to the Santa Fe National Forest. Also, this moth

[1] Includes all forested lands in Arizona and New Mexico and National Park Service land in southern Colorado and western Texas.

[2] Seed and cone insect information provided by Dr. H. Grant Kinzer, New Mexico State University, University Park.