



United States
Department of
Agriculture

Forest Service

Pacific
Northwest
Region



Pine Butterfly Update

Malheur National Forest

August 2012, Don Scott, Entomologist, Region 6 Forest Health
Protection, Blue Mountain Service Center



Adult male Pine Butterfly acquiring nectar

In August 2012, Don Scott, Entomologist, Region 6 Forest Health Protection, Blue Mountain Service Center, visited the Malheur NF pine butterfly outbreak area, where, for the past three seasons he has been monitoring 18 permanent plots with six trees per plot on the east side of Silvies Valley. His observations concluded that pine butterflies have not “killed all the trees,” and in fact have killed very few. The impact of the pine butterfly is now declining. This year trees are looking better than they did last year, even in the worst defoliated stands because the pine butterfly population is collapsing in those areas due to the buildup of natural predators and parasites as well as other reasons. With reduced insect populations, defoliation pressure is less so the trees are retaining the needles produced this year, which they have not been able to do the past couple of years because of the high larval population levels.

It is expected that there will be spotty areas of infestation next year in the areas where people are still seeing high numbers of butterflies flying about the tree crowns this year. The Swick Old-growth area, and some of the stands in the vicinity of Seneca, may be some of those areas judging from the high numbers of butterflies he has observed in these areas of the Forest. However, in most of the more heavily defoliated areas the past couple of years the numbers of butterflies flying around the tree crowns are down considerably compared to the previous couple of seasons. That is a good sign, because it indicates fewer new eggs will be produced this year to successfully overwinter, and fewer insects will be present in those stands to defoliate trees next year. The trees will be able to retain not only the needles produced this year, but the needles they will produce next season as well, and the crowns will start to look more normal. Within the next 2 or 3 years, the foliage biomass on most trees should have recovered to near normal levels, although the trees will not have produced as much diameter growth during the period of the outbreak and for several years afterwards, than they would have if the outbreak had not occurred. Growth loss is one of the lingering effects of insect defoliation, based on previous studies and experience. On the other hand, the insect excrement deposited in the areas of defoliation is rich in nitrogen and serves as “nature’s fertilizer” for

the forest. That material will help enrich the soil and aid trees in recovering from defoliation in the future.

Because some trees have so few needles left on them, the perception is that they are already dead or are likely to die—however, this is untrue. The trees are quite resilient; they are still producing healthy new buds which will produce new foliage again next summer, and the defoliated trees still have ample food reserves (carbohydrates) stored in the roots and lower bole to survive the short-term loss of nearly all their needles; they are presently recovering. Moreover, they are expected to fully recover. The issue of bark beetles possibly killing the weakened trees is not occurring, nor is it expected, except for a limited number of cases. Don has seen very few instances of bark beetles killing pine butterfly defoliated trees to date. Woodborers—occasionally with bark beetles—seem to be more common in the few cases of tree mortality he has observed. It is not expected that the situation will change in the next several seasons unless there is a major disturbance such as a large fire nearby or sudden, severe, and protracted drought which may cause beetles to build up. Then there might be a surge in beetle activity in the larger defoliated trees, particularly where they occur in groups or small groves. The vast majority of the trees will recover fully in 2 or 3 years if everything continues along the current course.

This outbreak covers over 250,000 acres, and has been severe across a good portion of those acres; but don’t count the trees out—they are much more resilient than you think! This is the fourth pine butterfly outbreak that has been recorded from the Blue Mountains since 1900. Some—maybe all of the outbreaks have occurred in some of the same locations on the Forest as the present outbreak. The last outbreak occurred in the 1980s. Our ponderosa pine stands survived all those outbreaks. Many of the trees experiencing pine butterfly defoliation in today’s outbreak were defoliated in the earlier outbreaks—some trees, like the old-growth overstory pines, have been through all four outbreaks, and are still with us today. These insects have been with us for time immemorial, and they have yet to destroy our forests. The current outbreak won’t either!