MONTANA FISH AND GAME DEPARTMENT
FISHERIES DIVISION
Helena, Montana

Monitoring of U. S. Forest Service Spruce Budworm Control Spray Project on Rock Creek Drainage, Missoula and Granite Counties, July 1964 1/

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The U. S. Forest Service spruce budworm control spray project in the Rock Creek Drainage was monitored by District 2 personnel from July 4-24, 1964. We were assisted by Messrs, Boland and Cox, Fish and Game employees assigned to the State Board of Health, Pollution Control team.

Four helispots were utilized by twelve helicopters to apply malathion in the H-series spray blocks shown on the enclosed map. Blocks in the 100 series were sprayed by fixed wing aircraft flown from the Missoula County airport. Approximately 133,000 acres were sprayed in the Rock Creek area at a rate of one gallon per acre. Each gallon of spray consisted of three-fourths of a pound of malathion and the remainder cycle oil. Spray block boundaries in the Rock Creek drainage were a half mile from the main stream and an eighth to a quarter of a mile from side streams. Spraying was scheduled for early morning hours with limitations of 65° F. maximum temperatures and five miles per hour maximum wind velocity.

One week prior to spraying we collected trout from Ranch and Brewster Creeks. Mr. Cox analyzed brains of these fish for acetylcholinesterase activity at the State Board of Health Lab at Helena. It was planned to collect and similarly analyze other fish brain samples if we observed any quantity of spray entering the water or any abnormal fish activity.

Stream monitoring began on July 4, 1964 in the Schwartz Creek area. Eighty, three-minute drift samples were taken from twelve streams during the spray program. Abnormal aquatic insect drift was encountered in only one sample. On July 20 at 12:45 p.m., one three-minute drift sample from Grizzly Creek, a tributary of Ranch Creek, contained sixteen dead or dying aquatic insects. Normal drifts consisting of one to three insects per sample were found in the remaining 79 samples. Dead terrestrial insects, with emerged aquatic insects, were common in most samples. Drift sampling was discontinued on July 24.

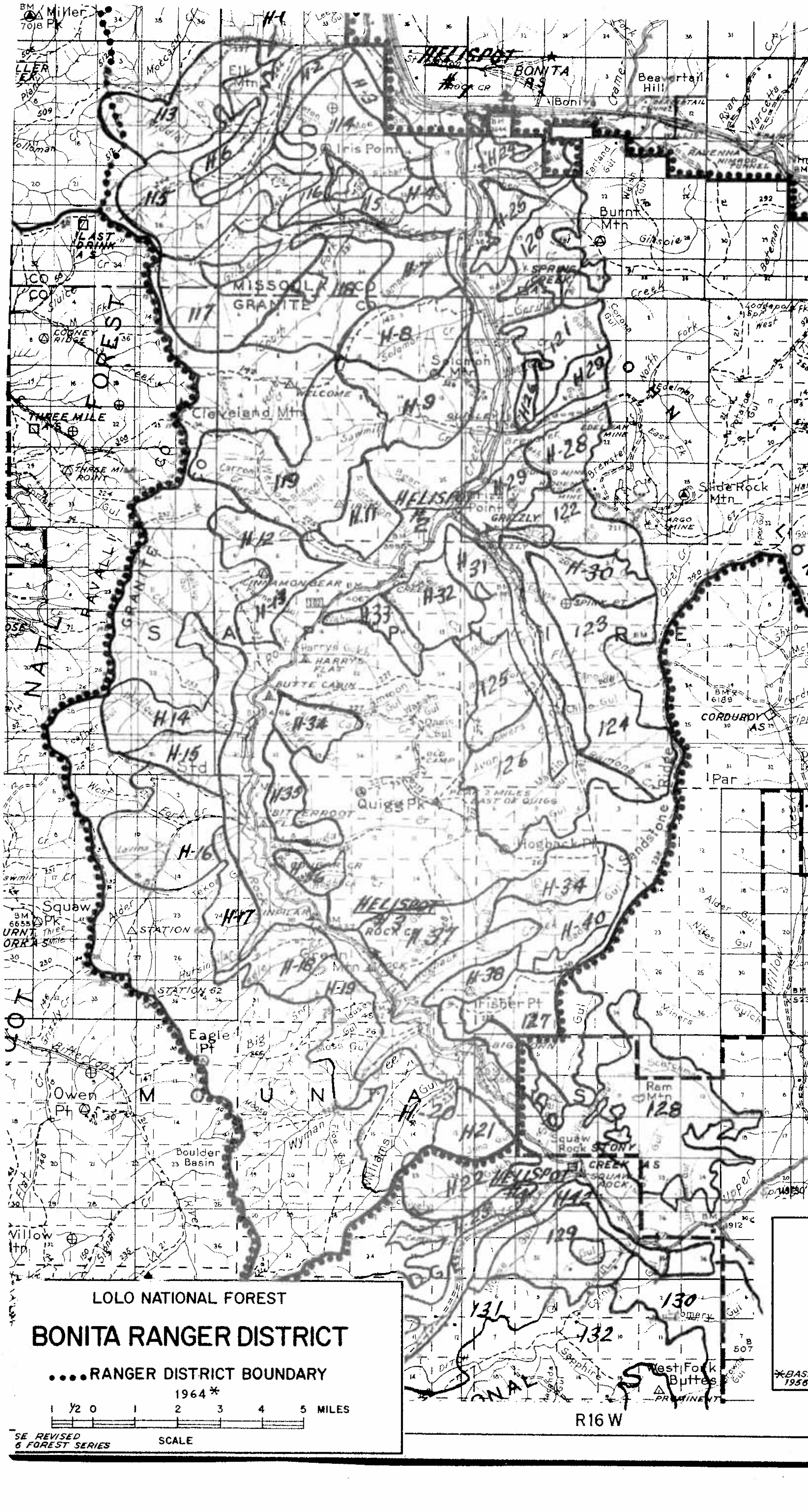
Coincident with the spray operation, 24 dead trout were reported in the main Clark Fork River downstream from the mouth of Rock Creek. By the time we heard of this kill, and investigated it, only one trout in an advanced stage of decay was observed. We cannot either relate this reported kill to, or separate it from, the spray project.

During the week of July 6, the Fish and Game Department plane and pilot from Helena and two men from the Missoula headquarters provided air surveillance in the lower Rock Creek spray areas. There were three known emergency dumps in the helicopter phase of the spray program; one helicopter violated the half-mile barrier strip in the H-11 spray block; and one fixed wing aircraft was observed spraying in block 127 on July 19 one and one-half hours after the spraying had been called off due to excessive wind. Violations of regulations were quickly corrected when brought to the attention of supervisory

1/ This work was undertaken as part of Federal Aid Project F-12-R-11, Job 1 and State Fisheries Project 29-J-0.

personnel and we could detect no measurable direct effect to the aquatic environment from any of these mishaps.

This monitoring study, like our previous ones, was necessarily limited in detail and extent. Unlike previous studies, however, it disclosed no aquatic insect kills of any magnitude and no fish kills at all which we could relate to the spray project. It also disclosed fewer "unfortunate errors" in application than we have previously observed. It was the least damaging U. S. Forest Service spray job we have seen to date as far as direct measurable effect to aquatic life is concerned.


LOLO NATIONAL FOREST
BONITA RANGER DISTRICT
RANGER DISTRICT BOUNDARY
1964 *
1/2 0 1 2 3 4 5 MILES
SCALE
SE REVISED
6 FOREST SERIES
R16 W
BONITA
HELISPOT
Beavertail Hill
Iris Point
Burnt Mtn
MISSOULA CO
GRANITE CO
Cleveland Mtn
Solomon Mtn
Slide Rock Mtn
WELCOME
GRIZZLY
SAPPHIRE
Quigg Pk
Hogback Pt
Sandstone Ridge
Harrys Flat
BUTTE CABIN
BITTERROOT FLAT
CORDUROY A S
Squaw Pk
STATION
Eagle Pt
Owen Pt
MUNA
Boulder Basin
Fisher Pt
Ram Mtn
Squaw Rock
STONY CREEK A S
Willow Mtn
West Fork Buttes
PROMINENT
LAST DRINK
THREE MILE
COONEY RIDGE
GRANITE
NAT FOREST