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Description Notes Handwritten note to Alvin L. Young at top of first page. Two attachments include map of test area c-52A and a page from AFATL-TR-75-142 (See Item 99 for full report)

Major Young

9/81

A1. This info was passed To Col Mobson For MG Ord. I guess There is some concern as you mentioned over the way things are being managed at Eglin. Just want you to know whats happening at this end. I was just asked to prepare some comments about what I knew and recommended about The 92 acres.

HERBICIDE ORANGE - RANGE C-52A
Eglin AFB, Florida

BACKGROUND

- Grid 1 of Range C-52A (see attached map) received greatest application of herbicides.
 - Used to test spray equipment/delivery systems, 1961-1964.
 - As much as 87,000 lbs of 2,4-D/2,4,5-T.
 - Some had 47 ppm TCDD (Dioxin).
 - Soil had low PBB levels in 1978.
- Periodic detailed ecological studies of the area provide unique scientific baseline (See attached extract from AFATL-TR-75-142, Oct 75).

COMMENTS

- Grid 1, Range C-52A should be left undisturbed.
 - Vegetation needed to hold TCDD (Dioxin)-contaminated soil from washing into streams, Bay, and Gulf.
 - Keep traffic out.
 - Prevent bulldozing, burning, scraping, vegetation removal.
- Natural evolution is of scientific value.
- No need for great concern, just awareness.

Col Caldwell/EC/3491/kb/3 Mar 81

2 Atch
1. Map, Grid 1
2. Extract, AFATL-
TR-75-142

NOTES CONCERNING TEST AREA C-52A
EGLIN AFB, FLORIDA

1. The attached map (Fig 1) shows Grid 1, an area of 92 acres south of the one square mile, Instrumented Test Grid.
 - a. This area was used to test spray equipment/delivery systems during the 1962-1964 time period.
 - b. Primarily Herbicide Purple was sprayed on the area.
 - c. Some of the Herbicide Purple may have contained 47 ppm TCDD.
 - d. This area had low ppb levels of TCDD in the soil as late as 1978.
 - e. The area represents the only site in the world known to have as much as 87,000 lbs of 2,4-D and 2,4,5-T sprayed on it.
 - f. It also represents the only area where detailed ecological studies have been conducted under actual field conditions. (See Atch 2), abstract from AFATL-TR-75-142, Oct 75.
 - g. It serves as a scientific baseline that is not, nor cannot be, recreated.
 - h. It should be left undisturbed so long-term studies can be completed to answer the questions being asked about low-level, chronic TCDD exposure on the bioenvironment.
 - i. It has generally been left undisturbed because it is outside the Instrumented Test Grid, a portion of it is rather rough and rutted, and does have a rather heavy vegetative covering.

RECOMMENDATIONS

1. The area shall be left undisturbed.

It should not be burned, bulldozed, scraped, anchor-chained, nor in any way should the plant life be removed.

2. The plants are needed to prevent wind and water erosion.

The TCDD-contaminated soil must be held in place to prevent its movement into the streams and eventually into the Bay and Gulf.

3. Keep traffic and people out.

4. Discourage personnel from working with or directly in the soil of this area.

5. There is no reason to become overly concerned or publicize the area. Just keep it closed.

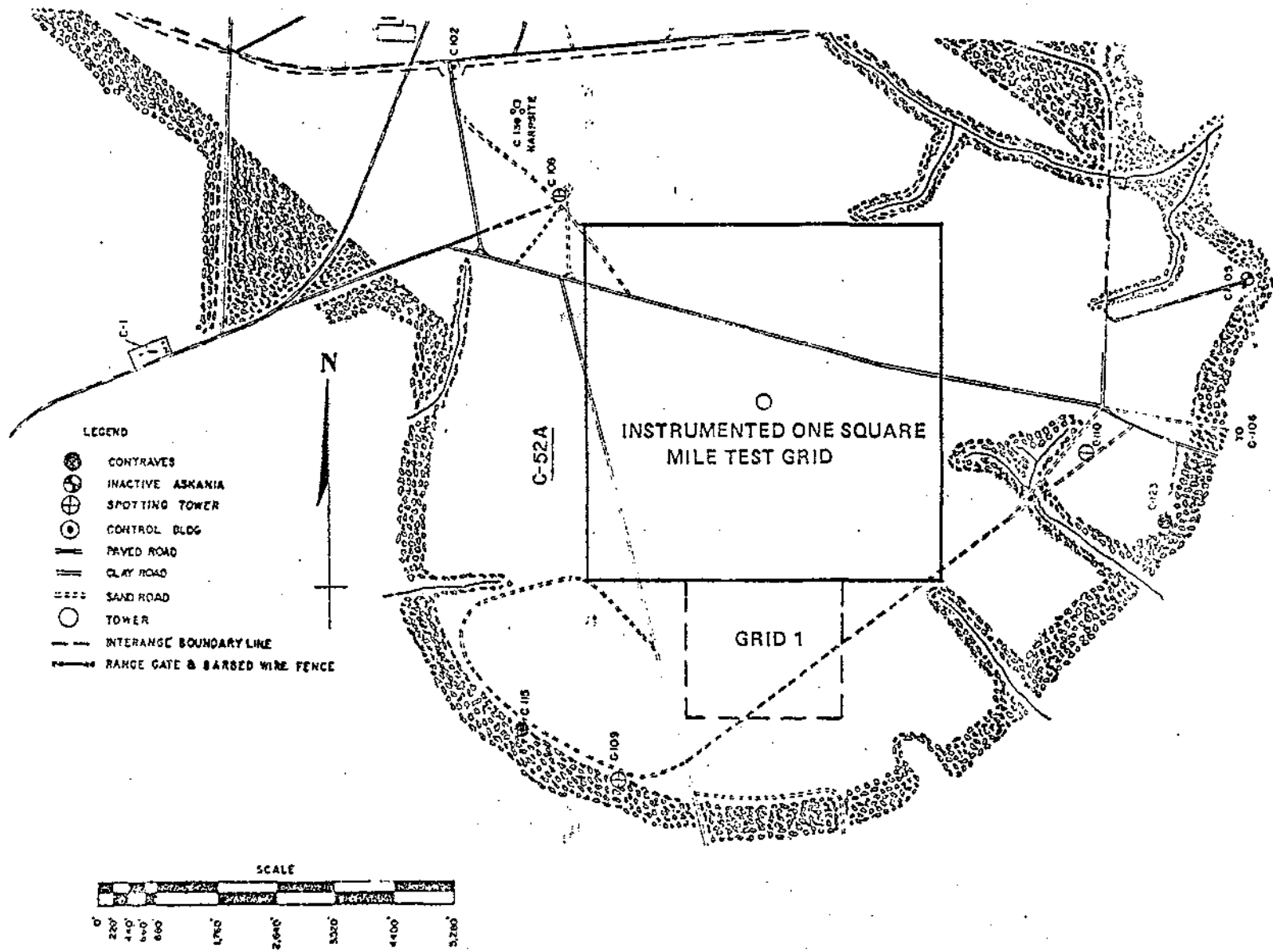


Figure 1. Map of Test Area C-52A, Eglin Air Force Base Reservation, Florida

Field investigations were conducted on rodents, insects, aquatic organisms, and plant species associated with a unique 1-square-mile military test site (Test Area C-52A, Eglin Air Force Base, Florida) that was sprayed with 160,948 pounds 2,4,5-trichlorophenoxyacetic acid (2,4,5-T) and 169,292 pounds 2,4-dichlorophenoxy-acetic acid (2,4-D). Although neither 2,4-D nor 2,4,5-T residues could be detected in the soils in 1973 or 1974, significant levels (10-710 parts per trillion - ppt) of the contaminant 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) were found within the top 6 inches of test site soils although in some instances 10 years had elapsed since the last aerial application of 2,4,5-T.

An in-depth study of the field effects of the herbicide and TCDD was conducted on populations of beach mice, Peromyscus polionotus, and hispid cotton rats, Sigmodon hispidus. Liver tissue from rodents inhabiting the test site contained 210-1,300 ppt TCDD. However, no gross or histological evidence of teratogenesis or toxicity was found in 122 adults and 87 fetuses. An analysis of variance of liver and spleen weights for the beach mouse indicated significant differences between control and TCDD-exposed animals. Analysis of plant seeds revealed no detectable levels of TCDD (minimum detection limit of 1 ppt TCDD). TCDD accumulation in liver tissue was thought to be associated with pelt contamination from burrowing and subsequent ingestion of soil particles via grooming.

Establishment and succession of plant species on areas denuded by repetitive applications of the herbicides were documented. Large seeded grasses (e.g., Panicum lanuginosum and Panicum virgatum) were the first species established on these sites. Annual herbs (e.g., Diodia teres and Hypericum gentianoides) rapidly invaded the low, moist areas between the grass plants. Seasonal trends in the weather components of wind, temperature, and precipitation were more influential in the reestablishment of vegetation than were herbicide residues.

Comparison of the final results in a 1971 and 1973 sweep net survey of the test area indicated that a threefold increase in insects had occurred during the 2-year period. However, there was no change in the community diversity with time. Increase in number of species was correlated with increase in vegetation.

Species diversities and food chain studies were conducted in two aquatic ecosystems draining the test area. Erosion of soil occurred into a pond on the test area and into a stream immediately adjacent to the area. TCDD levels of 10 to 35 ppt were found in silt of the aquatic systems but only at the point where eroded soil entered the water. Species diversity studies of the stream were conducted in 1969, 1970, 1973, and 1974. Insect larvae, snails, diving beetles, crayfish, tadpoles, and major fish species (by body parts) from both aquatic systems were analyzed for TCDD. Species diversity studies indicated no significant change in the composition of ichthyofauna between these dates or a control stream. Concentrations of TCDD (12 ppt) were found in only two species of fish from the stream, Notropis hypselopterus (sailfin shiner) and Gambusia affinis (mosquito fish). Samples of skin, muscle, gonads, and gut were obtained from Lepomis punctatus (spotted sunfish) from the test grid pond. Levels of TCDD in those body parts were 4,4,18, and 85 ppt, respectively. Gross pathological observations of the sunfish revealed no significant lesions or abnormalities.