CHAPTER VII. LAND COVER MAPPING

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A. INTRODUCTION

The objective of this activity was to produce a land cover map of the main experimental areas within the Little Washita watershed. Some mapping was done for each of the 10 days from June 9 to June 18, 1992. About 10 persons participated in the mapping at various times during this period. On the average, two cars were involved in the mapping daily, each covering about 15 miles. Some 80 percent of the 350 miles of roads within the watershed were mapped.

B. METHODS

The quality of the completed land cover map depends on the accurate location as well as on the accurate and consistent labeling of map units. Accurate location was accomplished by first carefully setting the starting point of a mapping segment (usually one mile long between intersections) on a 7.5-minute topographic map sheet. A starting odometer reading was also made. At boundaries between land cover types along the road and for boundaries away from the road, the current odometer reading, the topographic map contours, and a compass were used to estimate distances and locate map units on the field sheets. Other topographic map features such as railroads, pipelines, ponds, dams, quarries, houses, other structures, and intersecting streams were also used to aid in locating boundaries.

Accurate and consistent labeling of map units was more problematic, since more than one person was involved in the mapping. To help resolve inconsistencies during map compilation, several steps were taken. An evolving "standard" legend was used for labeling map units. All labels and actual map boundaries (where possible) were recorded on standard USGS 7.5-minute topographic map sheets (e.g., Fig. 1). For some stops, photographic documentation was also made, including the viewing

direction of the camera, its location on the map sheet, and scale information. Some stereoscopic photographs were also acquired. All field map sheet information was transferred to a set of master 7.5-minute topographic maps each evening, and any inconsistencies were resolved with the originator of the map sheet. In addition, redundant mapping (e.g., at road intersections), by two different persons or by the same person at two different times provided checks on the map labeling.

Daily selection of roads to be mapped was based on mapping progress to date, priority areas, gap filling, and the existence of trafficable roads. The routes taken were around the square mile of the township-range coordinate road system, straight north-south (or east-west), or irregular. Some of the mapping was done from the car ("window survey"). In most cases, the surfaces of roads were below those of fields; therefore, stops had to be made at regular intervals. At these stops, fences and car hood/trunk were used to obtain a better view into the fields, beyond the field edge vegetation. Both sides of roads and all four corners of intersections were mapped at a time.

C. MAP LEGEND

The following is the legend that has evolved so far. Examples of field sampling sites that are located completely or mostly in a particular class are noted in brackets.

RN	-	Rangeland, native (or "pasture"); mixed grasses (e.g., bluestem, three-awn, thistle, wild oat); surface appears rough or bumpy. [MS001, MS002, MS003, MS004, RG146]
RNG	-	RN, grazed; surface appears smoother relative to RN; for remote sensing, may not be that different from RT.
RN & T	-	RN & T (or SC - Scrub) [RG134]
RT	-	Rangeland, tame; e.g., Bermuda grass; appears like lawn grass; often planted on dams, diversion ridges.
W	-	Winter wheat [WW001, WW002]
Wh	-	W, harvested
Wf	-	W, fallowed
A	-	Alfalfa
T	-	Trees
B	-	Bare soil, little or no vegetation [AG004]
BS	-	B with stubbles
CN	-	Corn
O	-	Oats
F	-	Fallow

Of the 14 map units, the rangeland group was the largest areally, with native rangeland (RN) dominating (Fig. 2). The other rangeland subgroups were less

prevalent. Winter wheat was the other large group, with standing wheat (W) dominating. Most of the wheat was located in the western parts of the watershed, on interfluves. In the eastern parts, wheat was mostly located on floodplains, as were alfalfa (A) fields. Wheat was being harvested during the experiment period, and their occurrence was noted on the maps. Trees (T) were found throughout the watershed, often along drainageways. Bare soil areas (BS, Fig. 3) were scattered throughout the watershed, some due to harvesting, others due to erosion. The other units, corn (CN), oats (O), etc., were found in limited locations. The crop units (e.g., W, A, CN) were essentially pure. Rangeland, in contrast, had more inclusions (e.g., trees, bare areas); where substantial number of trees existed within a rangeland unit, that unit was classified as RN & T.

D. SUMMARY

Some 80 percent of the watershed were mapped into 14 tentative land cover classes, with native rangeland and winter wheat dominating areally. More detailed information on class proportions and distribution will be available when the final land cover map is completed. As planned, the map will be finalized using SPOT enlarged prints as base. The field topographic map sheets will be available for reference.

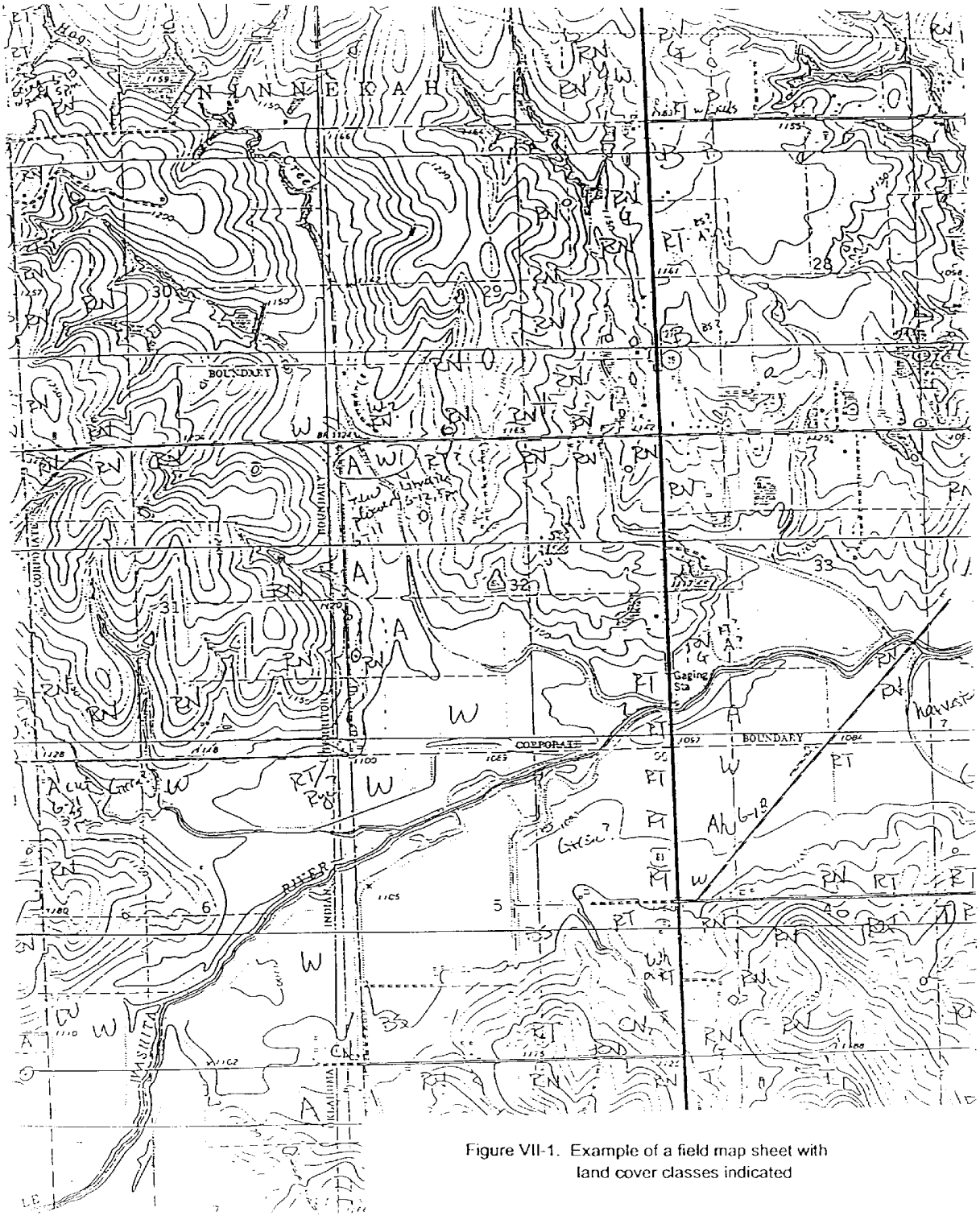

Figure VII-1. Example of a field map sheet with land cover classes indicated