

8/1/73

Toby Tubby Creek, Lafayette County, Mississippi, U. S. A.

(Yazoo Watershed)

Contents of first Vigil Network envelope

1. Map showing Toby Tubby & Hurricane Creek Valley Sedimentation Ranges.
(reduced photograph of parts of USGS topographic quadrangle maps)
2. Copies of 8 airphotos showing sediment range locations:

MZ-3DD-15	MZ-3DD-56
-33	-99
-34	-100
-58	-2DD-22

(some ranges also shown on airphotos in Goose Creek envelope)
3. Table - Sediment Range Data, Toby Tubby, Hurricane and Goose Creek Valleys.
4. Table - Comparison of sedimentation rates at USDA and adjacent Corps of Engineers ranges, Toby Tubby, Goose and Hurricane Creek Valleys.
5. Print, "Cross Sections of Tobitubby Creek Valley".
(Also see map in Hurricane Creek envelope)

ORIGINAL RECORDS

Original surveys were made in 1936-37 by the former Stream & Valley Sedimentation Research Section of the Soil Conservation Service. Notes are in books MISS-3, 10, 11, 13 and 20 in the National Archives, Cartographic Division, Washington, D. C., accessioned as Records of the Soil Conservation Service, Sedimentation Studies Part I Stream and Valley Notebooks, Job 447-126, April 1947. Plane table map sheets are in Bay A-236 in the attic of the Agriculture South Building, Washington, D. C.

Airphotos showing range locations, copies of boring notes, and some other related records from the Stream & Valley Sedimentation Research Section, are in custody of the Fort Worth Regional Office of the Soil Conservation Service.

Notes of 1965-66 resurveys are in books MISS-44, 45, 47, 48, 49 and 52, together with airphotos showing range locations, and other related records, in files of the USDA Sedimentation Laboratory, Oxford, Mississippi.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
SOIL AND WATER CONSERVATION RESEARCH DIVISION
USDA SEDIMENTATION LABORATORY
P. O. BOX 30
OXFORD, MISSISSIPPI 38655

14 August 1973

Dr. Anders Rapp
Laboratory of Geomorphology
University of Uppsala
Uppsala, Sweden

Dear Dr. Rapp:

Enclosed are four envelopes of data for permanent filing
in the Vigil Network Repository, identified as follows:

Hurricane Creek Valley
Toby Tubby Creek Valley

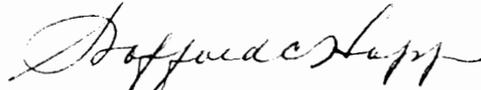
Goose Creek Valley
Yocona River Valley

An acknowledgment will be appreciated, for assurance of safe arrival.

These materials pertain to valley cross sections established as part
of sedimentation and erosion studies in the Yazoo watershed, Mississippi.
It is anticipated that additional materials concerning these particular
valleys will be submitted later, as well as general information pertaining
to these and other valleys and to be submitted as a general "Yazoo Watershed"
file.

Your consideration is invited to comments concerning possible questions
of procedure regarding future filings, in the enclosed copy of letter to
the Librarian, U.S. Geological Survey.

sincerely yours



Stafford C. Happ

Cards are enclosed in separate envelopes.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
SOIL AND WATER CONSERVATION RESEARCH DIVISION
USDA SEDIMENTATION LABORATORY
P. O. BOX 30
OXFORD, MISSISSIPPI 38655

14 August 1973

Librarian
U. S. Geological Survey
Washington, D.C. 20242

Dear Sir:

Enclosed herewith are four envelopes of data on valley cross section surveys, for addition to the "Yazoo Watershed" section of the Vigil Network repository files. They are:

Hurricane Creek Valley
Toby Tubby Creek Valley

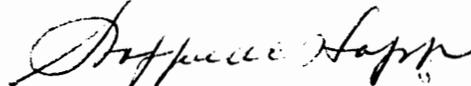
Goose Creek Valley
Yocona River Valley

Previous contributions were sent to Dr. Leopold, for transfer, but he has advised that they now be sent directly to you. Acknowledgment will be appreciated, as assurance of safe arrival.

Duplicate copies for the Uppsala file are being sent to Dr. Rapp, at the Laboratory of Geomorphology, University of Uppsala.

These are partial files, submitted now to assure preservation as it may be a year before remaining materials can be prepared. Also I now have additional materials that should be added to partial files submitted previously. It would seem simplest just to add more envelopes, but that will increase the bulk somewhat. Some previous prints will be duplicated by new copies including additional data. If minimizing the bulk seems of sufficient importance to undertake disposal of duplicated prints, I would want to designate the particular items to be discarded. Any advice concerning such possibilities, or other questions of procedure, will be welcomed.

sincerely yours



Stafford C. Happ

CC: Anders Rapp ✓
R. F. Hadley
Gordon Rittenhouse
R. D. Holt

Table . Sediment range data, Toby Tubby, Hurricane and Goose Creek valleys, Mississippi.
 (Positive values represent sediment accumulation, or channel narrowing; negative values represent erosion)

Valley and range	1937 sediment			1937-1965 sediment			1937-1965 channel changes					
	Width feet	Cross section sq. ft.	Av. Depth feet	Width feet	Cross section sq. ft.	Av. Depth feet	Aggradation		Width			
							Average feet	Talweg feet	1937 feet	1965 feet	Change feet	
Toby Tubby-	1	1265	4,955	3.92	1132	1041	0.92	-2.8	-3.3	35	30	5
	2	1000	5,220	5.22	912	975	1.07	-1.8	-2.9	17	29	-12
	3	1290	10,035	7.78	1180	880	0.75	0.8	0.6	10	24	-14
	4	950	6,125	6.45	956	1071	1.12	1.7	1.1	41	23	18
	5	1025	4,375	4.27	870	672	0.77	2.0	1.3	18	21	- 3
	6	770	3,045	3.95	788	160	0.20	-1.4	2.8	27	31	- 4
	7	870	3,785	4.35	887	644	0.73	1.1	2.4	22	22	-
	8	1300	5,445	4.19	1300	2990	2.30	1.4	2.3	17	22	- 5
	9	1630	2,705	1.66	1662	671	0.40	0.8	1.0	33	31	2
	10	1180	2,710	2.30	1100	486	0.44	-0.4 ^{1/}	-1.3 ^{1/}	28 ^{1/}	30	- 2
	11	1592	3,595	2.26	1647	647	0.39	1.5	1.1	60 ^{2/}	62 ^{2/}	- 2
	12	2270	4,800	2.11	2400	1334	0.56	1.4	0.7	44	41	3
	13	1520	3,325	2.19	1822	832	0.46	2.7	2.6	37	41	- 4
	14	1650	2,310	1.40	1699	1058	0.62	1.0	3.3	55	36	19
	16	1448	2,075	1.43	1477	737	0.50	4.6	3.5	45	50	- 5
	17				726	291	0.41	2.8	7.4	69	86	-17
	18	1910	3,630	1.90	1948	1616	0.83	5.4	9.0	47	56	- 9
Toby Tubby	subtotal			3.13			0.72	1.2	1.9			2
West Goose-0.B	76	60	0.79	89	140	1.57	4.0	6.2	9	3/	3/	
0.A	170	285	1.68	175	200	1.14	3.7	3.9	20	17	3	
1	300	800	2.67	300	40	0.13	-1.9	-3.2	22	21	1	
2	403	950	2.38	462	60	0.13	-0.9	-3.3	49	40	9	
3	880	1,540	1.75	660	361	0.55	1.3	1.2	51	31	20	
4	990	5,695	5.75	1070	1510	1.41	0.6	2.1	26	18	8	
6	921	5,470	5.94	820	97	0.12	-3.6	-3.8	30	37	- 7	

Table . Continued.

East Goose-	1	747	2,475	3.31	787	30	0.04	-3.7	-4.6	21	16	5
	2	560	1,460	2.61								
	3	1080	1,975	1.83	1220	1825	1.50	-0.3	-1.1	31	25	6
	4	1560	3,820	2.45	1494	1945	1.30	1.3	-0.1	20	31	-11
	5	1860	7,265	3.91	1920	952	0.50	-2.9	-1.8	27	61 ^{4/}	-34 ^{4/}
	6	2140	10,698	5.00	2264	2850	1.26	6.6 ^{5/}	8.2 ^{5/}	35	34 ^{5/}	1
Goose-	7	1760	7,925	4.50	1539	1243	0.81	-3.6 ^{5/}	-4.6 ^{5/}	+40	20 ^{5/}	-5
								-0.6 ^{6/}	-2.0 ^{6/}		25 ^{6/}	
	8	1690	4,860	2.88	1561	1325	0.85	-4.9 ^{5/}	-5.6 ^{5/}	+40	15 ^{5/}	-2
								-2.3 ^{6/}	-3.5 ^{6/}	+12 ^{6/}	14 ^{6/}	15
	9	2040	6,500	3.19	1939	746	0.38	-3.7 ^{5/}	-4.9 ^{5/}	+40 ^{5/}	34 ^{5/}	15
								-1.6 ^{6/}	-1.1 ^{6/}	+28 ^{6/}	13 ^{6/}	-4
	10	1380	3,310	2.40	1360	115	0.08	-1.7 ^{7/}	-3.1 ^{7/}	30 ^{7/}	31	-1
	Goose Creek subtotal			3.51			0.76	-0.4	-0.7			-3
Hurricane-	A	145	265	1.83	210	60	0.29	1.1	1.6	19	8	11
	B	200	640	3.20	255	430	1.69	1.0	-0.6	17	35 ^{8/}	-18
	C	200	330	1.65	233	123	0.53	-0.9	-1.5	16	14	2
	D	330	620	1.88	392	136	0.35	0.0	-0.3	10	7	3
	E	580	1,990	3.43	316	285	0.90	1.7	1.7	15	22	-7
	1	905	5,540	6.12	842	255	0.30	-1.2	-2.5	9	5	4
	2	795	3,845	4.84	793	463	0.58	0.9	1.0	10	15	-5
	3	765	3,555	4.65	765	1010	1.32	-0.8	-1.3	6	9	-3
	4	1340	6,440	4.81	1360	370	0.27	0.6	0.4	13	15 ^{9/}	-2
	5	1572	8,665	5.51	1582	1866	1.18	0.5	1.2	24	53 ^{9/}	-29
	6	1085	4,750	4.38	1094	239	0.22	-1.3	-1.8	22	31	-9
	7	1430	7,765	5.43	1416	245	0.17	-5.1	-6.7	32	40	-8
	9	1167	6,170	5.29	1388	1816	1.30	-2.7	-3.8	26	24	2
	10	1094	1,795	1.64	1132	420	0.37	0.2	-0.6	29	33	-4
	12	1265	3,504	2.77	1320	483	0.37	0.1	-0.1	52	43	9
	14	944	1,480	1.57	1651	804	0.48	1.2	1.0	50	52	-2
	15	960	1,950	2.03	1014	562	0.55	1.3	3.2	34	41	-7
	Hurricane subtotal			4.01			0.61	-0.2	-0.6			-4
	Total			3.50			0.70	0.2	0.2			-1

Table . Continued.

- 1/ Toby Tubby 10 crossed 2 channels in 1937, but data are given only for one which has persisted.
- 2/ Toby Tubby 11 crosses confluence of Goose Creek and Toby Tubby, so that the channel width is abnormal.
- 3/ There was no defined channel at West Goose O.B in 1965.
- 4/ East Goose 5 shows an abnormal width of 61 feet in 1965, because it crosses diagonally an artificial ditch constructed since 1937. True normal width of this ditch is nearer 30 feet.
- 5/ East and 6/ West Goose Creek flowed on either side of the filled Goose Creek ditch without well-defined channels at Goose Creek 7 in 1937, and West Goose was similar at 8 and 9. In 1965 each branch occupied 3 channels at Line 7; these have been combined for each branch in the tabulation, and all six have been used for comparison with the 1937 ditch. For Goose Creek 8 and 9 the comparisons are shown between the new 1965 West Goose channel and the filled Goose Creek ditch of 1937.
- 7/ At Goose Creek 10 the 1937 channel data are for the combined total of 2 small channels.
- 8/ Hurricane Creek channel at B was artificially straightened and enlarged, between 1937 and 1965.
- 9/ Hurricane Creek 5 channel data are for 4 small channels through which flow was divided in 1965.

Table . Comparison of sedimentation rates at USDA and adjacent Corps of Engineers ranges, Toby Tubby, Goose, and Hurricane Creek valleys.

Range		1837-1937 sediment			1937-47 sediment by difference ^{1/}				1947-1966 sediment ^{2/}			
USDA	USCE	Width	Cross section	Av. depth	Width	Cross section	Av. depth	Change of rate	Width	Cross section	Av. depth	Change of rate
		<u>feet</u>	<u>sq. ft.</u>	<u>feet</u>	<u>feet</u>	<u>sq. ft.</u>	<u>feet</u>	<u>percent</u>	<u>feet</u>	<u>sq. ft.</u>	<u>feet</u>	<u>percent</u>
TT- 3	& R- 1-V	1290	10035	7.78	1180	542	0.46	- 41%	875	265	0.30	- 65%
TT- 7	& R- 7-V	870	3785	4.35	887	353	0.40	- 9%	650	225	0.35	- 54%
TT- 9	& R-10-V	1630	2705	1.66	1662	407	0.24	+ 48%	1240	210 ^{3/}	0.17	- 64%
TT-10	& R-11-V	1180	2710	2.30	1100	328	0.30	+ 30%	1400	213	0.15	- 73%
TT-13	& R-16-V	1520	3325	2.19	1822	459	0.25	+ 15%	2115	456	0.22	- 55%
TT-16	& R-18-V	1448	2075	1.43	1477	183	0.12	- 13%	1347	534	0.40	+ 68%
EG- 3	& R- 1-V	1080	1975	1.83	1220	872	0.72	+291%	1652	1360	0.82	- 39%
WG- 6	& R- 2-V-B	921	5470	5.94	820	96	0.12	- 80%	804	1 ^{4/}	0.001	- 99%
G - 7	& R- 8-V	1760	7925	4.50	1539	169	0.11	- 76%	1295	1003	0.77	+271%
G - 9	& R-10-V ^{5/}	2040	6500	3.19	1939	372	0.19	- 40%	1925	393 ^{6/}	0.20	- 44%
G-10 ^{5/}	& R-11-V ^{5/}	1380	3310	2.40	1360	22	0.02	- 93%	854	63 ^{7/}	0.07	+138%
H - 7	& 7.49(R)	766 ^{8/}	4600	6.01	766	62	0.08	- 87%	766 ^{8/}	26	0.03	- 78%
H - 9	& 6.38(P)	1167	6170	5.29	1388	1024	0.74	+ 40%	1446	904	0.63	- 55%
H -12	& 3.49	1260	3285	2.61	1320	214	0.16	- 38%	1800	367	0.20	- 34%
Total		18312	63870	3.49	18480	5097	0.28		18169	6020	0.33	
Average per year				0.035			0.028	- 20%			0.017	- 39%

1/ 1937-47 sediment thickness derived from 1937-65 thickness, by subtracting thickness at nearby Corps of Engineers range, reduced proportionately from 1947-66 to 1965 date. Cross section is nominal value from derived thickness times width, for computing average 1937-47 rate.

2/ Ranges 7.49(R), 6.38(P) and 3.49 were first surveyed in 1948, not 1947; R-8-V was resurveyed in 1967, 7.49(R) and 6.38(P) in 1968, not 1966.

3/ R-10-V resurvey showed apparent one foot erosion across a flat swamp 400 ft. wide at right side of valley, which appeared unreasonable and was eliminated from data for comparisons.

4/ R-2-V-B resurvey showed apparent erosion of a 2 ft. ridge about 250 ft. wide, in a relatively smooth, level pasture. The owner, who cultivated the site in 1947 and for many years previously, did not remember such a former ridge, and it was eliminated from the data as probably erroneous.

5/ G-10 is continuation of TT-10, where Toby Tubby and Goose Creek flood plains are confluent. R-10-V and R-11-V also cross both flood plains, and were divided for comparisons.

6/ There are several tangents in R-10-V, beyond which the resurvey apparently deviated downstream, perhaps as much as 40 ft. at left side of Goose Creek. The ground is relatively smooth and regular, however, and the deviation does not appear to preclude reasonable comparison.

7/ Resurvey of Goose Creek part of R-11-V showed apparent net erosion, because of more resurvey points in low swales than on original profile. To eliminate that bias, comparison was made only from points common to both surveys, which indicates small net fill in accord with adjacent resurveys.

8/ Range 7.49(R) crossed only part of flood plain, and only corresponding part of H-7 used for comparison.