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Ex. 281-US-424

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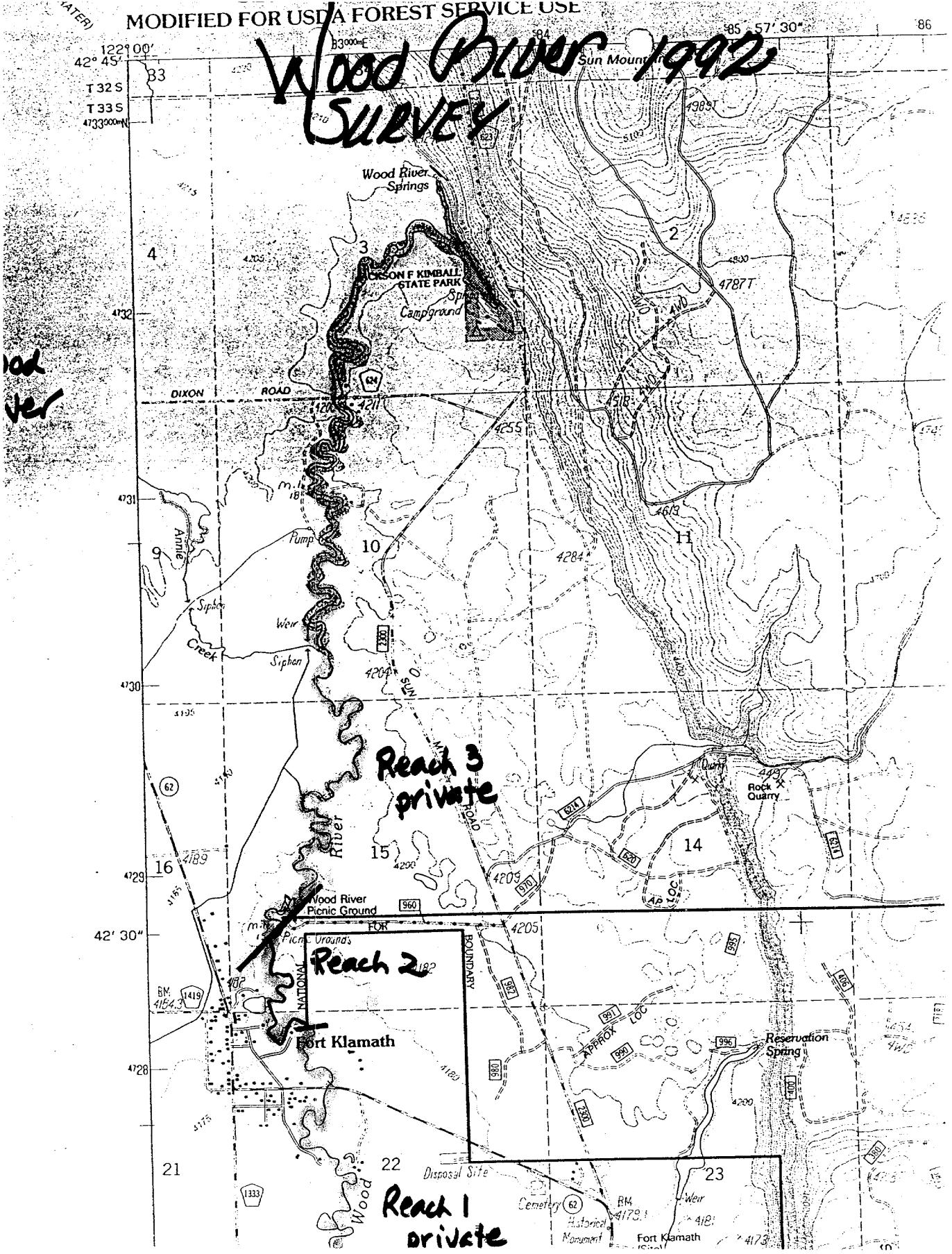
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# Wood River 1992 SURVEY



Wood River

Reach 3 private

Reach 2

Reach 1 private

## WOOD RIVER

On 6/8/92 Rob Vasquez, Dave Richter, Mike Mathews, and Ray Schoenemann surveyed the Wood River. Rob and Dave worked on the habitat survey while Ray and myself snorkled the reach for fish distribution. Upon completing the habitat survey Dave and Rob snorkled the lower half of the reach.

### HABITAT SURVEY

Wood river is a low gradient, sinuous springfed system. Discharge varies little throughout the year. Substrate consists of gravel and sand and sand and gravel; substrate larger than gravel was rare. Substrate on both the stream bottom and banks are highly susceptible to erosion, streambed substrate redistributes constantly. Habitat consists largely of long glides with many scour pools along the banks and behind instream structures. Riffles constitute approximately 20% of the reach, these are few and lengthy(100-200') comprised of shallow gravels and gravel bars. Pool habitat developed from scouring and are quite deep(6-10') pools of this size are formed at the cutbank portion of the bend and behind large instream structures. Cover is abundant along the streambanks, which offers undercut, wood, and vegetation for refuge. Pool depth provides cover as well. Little cover exists in the middle two-thirds of the channel. Hydrology is very consistent under natural conditions, but varies greatly with diversion rates. Water temperature increases through the course of a day, gaining 7 degrees from morning to mid-afternoon(45-52).

### FISH SURVEY

We started from the F.S upper boundary to the lower boundary, inspecting nearly all habitats. Later that day another crew re-snorkled the lower section. In both passings 3-6" fish sparsely distributed in the deep undercuts and brush bundles were observed. The exception was behind a log and rock weir; the 10' pool behind the weir held approximately 15 fish ranging in size from 12-24". Young of the year fish were observed in nearly all shallow slower moving water. About 80% of the fish identified were brown trout the remaining ~~was~~ <sup>were</sup> rainbow trout.

Mike Mathews



Hydrologist

Stream Name : WOOD RIVER 92  
Year : 92

Comments

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NONE.

Stream Name : WOOD RIVER 92  
Year : 1992

Reach No : 1

Comments

-----  
PRIVATE LAND. NOT SURVEYED.

Reach No : 2

Comments

-----  
RIVER FORMS FOREST SERVICE BOUNDARY AT PICNIC AREA.

Reach No : 3

Comments

-----  
PRIVATE LAND. NO SURVEY.

Stream Name : WOOD RIVER 92  
Year : 1992

Reach No : 2

NSO	HabType	Comments
4	P1	SILT LOCATED 90 DEGREES TO FLOW. BARRIER BLOCKING SMALL FLOW.
12	R2	SMALL POOL.
13	G4	EA SITE.
20	S4	GRAVEL ISLANDS NEAR FS.
21	G6	TURBULENCE AND WOOD PROVIDE COVER AT ~50 FT FROM END OF GLIDE.
22	R6	GAGE = .90
24	R7	SCOUR POOL IN RIFLE. FOREST SERVICE BOUNDARY AT END OF FENCELINE.







Stream Name : WOOD RIVER 92  
Year : 1992

Reach	Mile From - To	Zone Width	Floodplain Vegetation, Zone 1						Riparian Vegetation									
			GF	SS	SP	ST	LT	MT	GF	SS	SP	ST	LT	MT				
2	13.1 - 13.9	20	57%	43%														

\*If more than one entry is listed per reach, there were an equal number of each.

Stream Name : WOOD RIVER 92  
Year : '92

Reach	Mile From - To	Zone Floodplain Vegetation, Zone 2												
		Width	GF	SS	SP	ST	LT	MT	GF	SS	SP	ST	LT	MT
2	13.1 13.9	80	43%	57%										

\*If more than one entry listed per reach, there were an equal number of each.  
If report is blank, no data was found for this stream in Floodplain 2.

WOOD RIVER  
REACH 2  
NSO 10 G-3  
ISLAND WITH SIDETCHANNEL



WOOD RIVER  
REACH 2  
NSO 12 R-2  
DOWNSTREAM OF RIFFLE



WOOD RIVER  
REACH 2  
NSO 20 S-4  
END OF REACH 2

STREAM IDENTIFICATION FORM

R6-2500/2600-10

Page: 1 of   

Date:   /  /    
YY/Mmm/DD

A. State 41 B. County 035 C. Forest 20 D. District 02

E. Stream Name: Wood River

F. Watershed Code 18, 01, 02, 03 NFS 03, J;   ,   ,   ,   

G. USGS Quad: Ft. Klamath

H. Survey Date:   /  /    
Year/ Month /Day

I. Name:   

1. Watershed Area 56128 Acres (Hectares) (from USGS near Ft. Klamath)

2. Stream Order 2

3. Stream Class 1

4. Fish Species   ,   ,   ,   ,   ,   ,   ,   

Data Source:   

5. Flow Data:

Data Source:   

6. Water Quality Data:

Data Source:   

7. Macroinvertebrate Data:

Data Source:   

8. Previous Surveys:

Data Source:   

9. Historical Land Use Data:

Data Source:   

10. Coordination:   

11. Comments:

F. REACH IDENTIFICATION FORM B2 (FIELD)

R6-2500/2600-21

Page 1 of     

A. State 41 B. County 035 C. Forest 20 D. District 02  
 E. Stream Name: Wood River  
 F. Watershed Code 18, 01, 02, 03 NFS 03, J;  
 G. USGS Quad: Ft. Klamath  
 H. Survey Date:     /    /      
 Year/ Month /Day  
 I. Name:     

1. Reach # 1 2. NSO      to       
 3. Flow       
 4. Channel Entrenchment D      M      S       
 \* 5. River Mile 0.0 to 13.1  
 \* 6. Sinuosity value       
 7. Average Channel Gradient       
 \* 8. Valley Length       
 9. Valley Form       
 10. Valley Width Class 1      2      3      4       
 11. Stream Canopy Closure 1      2      3      4       
 12. Dominant/Subdominant a.)      b.)       
 Substrate       
 13. Inner Riparian Zone Width       
 14. Comments private - no survey  
 \_\_\_\_\_  
 \_\_\_\_\_  
 15. Observer:       
 Recorder:       
 16. Date:     /    /      
 YY/MM/DD

1. Reach # 3 2. NSO      to       
 3. Flow       
 4. Channel Entrenchment D      M      S       
 \* 5. River Mile 13.9 to 18.8  
 \* 6. Sinuosity value       
 7. Average Channel Gradient       
 \* 8. Valley Length       
 9. Valley Form       
 10. Valley Width Class 1      2      3      4       
 11. Stream Canopy Closure 1      2      3      4       
 12. Dominant/Subdominant a.)      b.)       
 Substrate       
 13. Inner Riparian Zone Width       
 14. Comments private - no survey  
 \_\_\_\_\_  
 \_\_\_\_\_  
 15. Observer:       
 Recorder:       
 16. Date:     /    /      
 YY/MM/DD

1. Reach # 2 2. NSO 1 to 24  
 3. Flow 29.7 cfs  
 4. Channel Entrenchment D      M      S       
 \* 5. River Mile 13.1 to 13.9  
 \* 6. Sinuosity value 2.6  
 7. Average Channel Gradient 0.3%  
 \* 8. Valley Length 0.3 mi  
 9. Valley Form 10  
 10. Valley Width Class 1      2      3      4 X  
 11. Stream Canopy Closure 1 X 2      3      4       
 12. Dominant/Subdominant a.) GR b.) SA  
 Substrate       
 13. Inner Riparian Zone Width 20'  
 14. Comments River forms Es boundary at picnic area  
 \_\_\_\_\_  
 \_\_\_\_\_  
 15. Observer: DRICHTER  
 Recorder: RVASQUEZ  
 16. Date: 92/06/08  
 YY/MM/DD

1. Reach #      2. NSO      to       
 3. Flow       
 4. Channel Entrenchment D      M      S       
 \* 5. River Mile      to       
 \* 6. Sinuosity value       
 7. Average Channel Gradient       
 \* 8. Valley Length       
 9. Valley Form       
 10. Valley Width Class 1      2      3      4       
 11. Stream Canopy Closure 1      2      3      4       
 12. Dominant/Subdominant a.)      b.)       
 Substrate       
 13. Inner Riparian Zone Width       
 14. Comments       
 \_\_\_\_\_  
 \_\_\_\_\_  
 15. Observer:       
 Recorder:       
 16. Date:     /    /      
 YY/MM/DD

\*These values determined back in office

RIPARIAN IDENTIFICATION FORM C  
 RG 2500-22/2600-22

A. State 41 B. County 035 C. Forest 20 D. District 03 E. Stream Name: WOOD RIVER  
 F. Watershed Code 18, 01, 02, 03 NPS \_\_\_\_\_ G. USGS Quad: \_\_\_\_\_  
 H. Survey Date: 02/06/08 Year/ Month / Day

Observer D. RIEHTER  
 Recorder R. VASQUEZ

I. Reach Number: \_\_\_\_\_ J. (Sampling frequency: Pool 4; Riffle 4; Slide 4)  
 (\* Indicates information to be gathered at the Mh unit only)

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.							
Nat. Seq. Ord.	Hab. Type & Num.	Hab. Length	Hab. Width	Hab. Depth	Depth	Substrate	S-dom.	Pieces	LVD	L	S	L	Dom.	S-dom	Bank Full	Bank Full	Bank Full	Bank Full	Bank Full	Bank Full	Bank Full	Bank Full	Bank Full	Bank Full	Bank Full	Bank Full	Bank Full	Bank Full	Bank Full							
		ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.							
1	R1	120	45	2.3		GR	GR	0	1	0	2	U	T																							
2	S1	75	16	1.1		GR	SA	1	1	0	2	U	T																							
3	S2	55	7	1.7		SA	GR	0	0	0	2	U	T																							
	MPI	52	55	10.0	1.4										125	2.8	N	SA	SA	1	SS	HA	HW	SS	HW	HW										
4	P1	60	60	10.0	1.4	GR	SA	2	1	0	4	D	W																							
5	P2	50	40	7.0	2.3	SA	GR	5	0	0	2	D	W																							
6	G1	95	53	3.5		GR	GR	4	2	0	2	U	W																							
7	P3	190	45	10.0	1.5	GR	SA	3	5	0	3	D	U																							
8	G2	60	45	1.8	1.2	GR	SA	1	2	0	2	U	T																							
	MG2	65	49	1.8																																
9	P4	70	40	5.0	1.3	GR	SA	4	1	1	2	W	D																							
10	G3	140	50	2.5		GR	GR	2	1	0	2	H	H																							
11	S3	135	32	4.5		SA	A	7	7	1	3	W	D																							
12	R2	90	50	2.2		GR	GR	3	8	0	2	D	W																							
	MR2	97	54	2.2																																
13	G4	460	40	4.0		SA	GR	2	5	0	1	U	D																							
14	R3	160	45	1.5		GR	GR	3	2	0	1	H	U																							
15	G5	250	45	4.0		GR	SA	1	1	0	1	D	W																							
16	P5	90	40	6.0	1.3	SA	SA	1	0	0	2	D	U																							
	MP5	120	47	6.0	1.3										53	3.1	N	SA	SA	1	GF	GF	HW	GF	HW	GF	HW	GF	HW	GF	HW	GF	HW	GF	HW	GF
17																																				

Pool start # 5 Riffle start # 2 Glide start # 2  
 Floodplain codes: GF, SS, SP, ST, LT, WT  
 Shrubland ht.: (1(0-2)) 2(2-5) 3(5-10) 4(10+)  
 Conifer Codes = CA, CC, CD, CE, CF, CH, CL, CM, CP, CQ, CR, CS, CT, CV, CY, CX  
 Hardwood Codes = HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HW, HX

Pool start #	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Riffle start #																										
Glide start #																										



3200 ft. L 5280 m

RIPARIAN IDENTIFICATION FORM C

RG 2500-22/2600-22

A. State \_\_\_\_\_ B. County \_\_\_\_\_ C. Forest \_\_\_\_\_ P. District \_\_\_\_\_ E. Stream Name: \_\_\_\_\_  
 H. Survey Date: \_\_\_\_\_ Year/ Month / Day \_\_\_\_\_ G. USGS Quad: \_\_\_\_\_

1. Reach Number: \_\_\_\_\_ j. (Sampling frequency: Pool \_\_\_\_\_ Riffle \_\_\_\_\_ i. Glide \_\_\_\_\_)

(\* Indicates information to be gathered at the 10th unit only)

1. Net. Seq. Ord.	2. Hab. Type & Num.	3. Length	4. Hab. Width	5. Max. Depth	6. Depth (Pool)	7. Substrate	8. S-dom.	9. Piece LVP	10. B S	11. L	12. I	13. Dom. S-dom	14. Full	15. Bank	16. Bank Embed	17. Bank edness	18. SA, GR, CO, SB	19. SA, GR, CO, SB	20. SA, GR, CO, SB	21. Floodplain 1	22. Floodplain 2	23. Water Temp. (3X/day) (circle one)	24. Comments
		ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.
17	R4	50	35	2.1		GR SA	2	0	0	2	D	W											
18	P6	75	25	6.0	1.4	GR SA	5	2	0	3	D	W											
19	R5	285	60	4.0		GR GA	4	0	0	1	T	T											
20	S4	130	5	2		SA SA	3	0	0	1	A	W											
21	G6	230	40	6.0		GR SA	3	0	0	2	U	D											
	MG6	273	44	6.0																			
22	R6	160	50	2.4		GA SA	5	0	0	2	W	T											
	MR6	178	43	2.4																			
23	P7	115	35	6.0	1.9	SA GR	4	0	0	2	D	U											
	MP7	140	47	6.0	1.9																		
24	R9	115	43	3.2		GR SA	5	1	0	2	D	W											

Floodpl. codes: GF, SS, SP, ST, LT, MT  
 Shrubland ht.: 1(0-2') 2(2-5) 3(5-10) 4(>10')

Confifer Codes: CA, CC, CD, CE, CF, CH, CJ, CL, CM, CP, CQ, CR, CS, CT, CV, CY, CX  
 Hardwood Codes: HA, HB, HC, HD, HE, HL, HM, HN, HO, HQ, HT, HW, HX

Pool start # \_\_\_\_\_ Riffle start # \_\_\_\_\_ Glide start # \_\_\_\_\_

COMMENTS FORM C3 (FIELD)  
R6-2500/2600-25

A. State 41 B. County 035 C. Forest 20 D. District 02  
 E. Stream Name: Wood  
 F. Watershed Code 18, 01, 02, 03 NFS 03, 5  
 G. USGS Quad: \_\_\_\_\_  
 H. Survey Date: 6 / 8 / 92  
 Year / Month / Day

Reach #	NSO #	Habitat Type and Number	Comment
2	3		DIVERSION BEHIND TRAILOR PARK ON PRIVATE LAND
2	4-5		WEIR MAN MADE ROCK
2	10		#17 Roll 38 ISLAND, SIDCHANNEL
2	12		#18 Roll 38 DOWNSTREAM AT RIFFLE
2	20		#19 Roll 38 GRAVEL ISLAND END OF REACH

DISCHARGE FORM Q

Stream Name WOOD RIVER GAGE .86 @ 1215 Date 6-9-92 Page 1 of 1  
 Meter (type & number) Pygmy 03 Swiffer (number) 3950  
 Spin Test (seconds): Before 60+ After 60+ All measurements at 45 seconds  
 Instrument Person D. Richter Recorder R Vasquez  
 Wx Clear 76°F START 1215 END            H<sub>2</sub>O 51°F

COMMENT: FLOW TAKEN @ 35 FT<sup>UP</sup> STREAM FROM GAGE.

Dist. from left stake	Width of subset	Depth of water	Area of subset	Meter revolutions	Velocity	Discharge (cfs)
LEW = .6	.75	1.11	.833	∅	∅	∅
2.1	1.50	1.12	1.68	5	.137	.230
3.6	1.50	.5	.750	38	.853	.639
5.1	1.50	.4	.600	40	.896	.537
6.6	1.50	.57	.855	56	1.244	1.063
8.1	1.50	.65	.975	53	1.179	1.149
9.6	1.50	.72	1.08	61	1.352	1.460
11.1	1.50	.80	1.20	70	1.548	1.857
12.6	1.50	.87	1.305	77	1.700	2.216
14.1	1.50	.87	1.305	88	1.939	2.530
15.6	1.50	.94	1.41	102	2.243	3.162
17.1	1.50	1.12	1.68	103	2.264	3.804
18.6	1.50	1.35	2.025	113	2.481	5.024
20.1	1.50	1.50	2.250	107	2.351	5.287
21.6	1.50	2.02 1.50	2.250	113	2.481	5.582
23.1	1.50	1.53	2.295	89 / 117	2.264	5.196
24.6	1.50	1.60	2.40	122 / 96	2.395	5.748
26.1	1.50	1.59	2.385	129 / 107	2.590	6.177
27.6	1.50	1.49	2.235	119	2.612	5.837
29.1	1.50	1.49	2.235	122	2.677	5.983
30.6	1.50	1.42	2.130	120	2.633	5.608
32.1	1.50	1.43	2.145	102	2.243	4.811
33.6	1.50	1.49	2.235	103	2.264	5.060
35.1	1.50	1.73	2.595	97 / 48	1.591	4.128
36.6	1.50	1.75	2.625	90 / 61	1.656	4.347
38.1	1.50	1.49	2.235	34	.766	1.712
39.6	1.50	1.47	2.205	12	.289	.637
41.1	1.20	.25	.300	∅	∅	∅
REW = 42.0	.45	∅				
41.4 ✓	41.4 ✓		X = 48.22			89.7