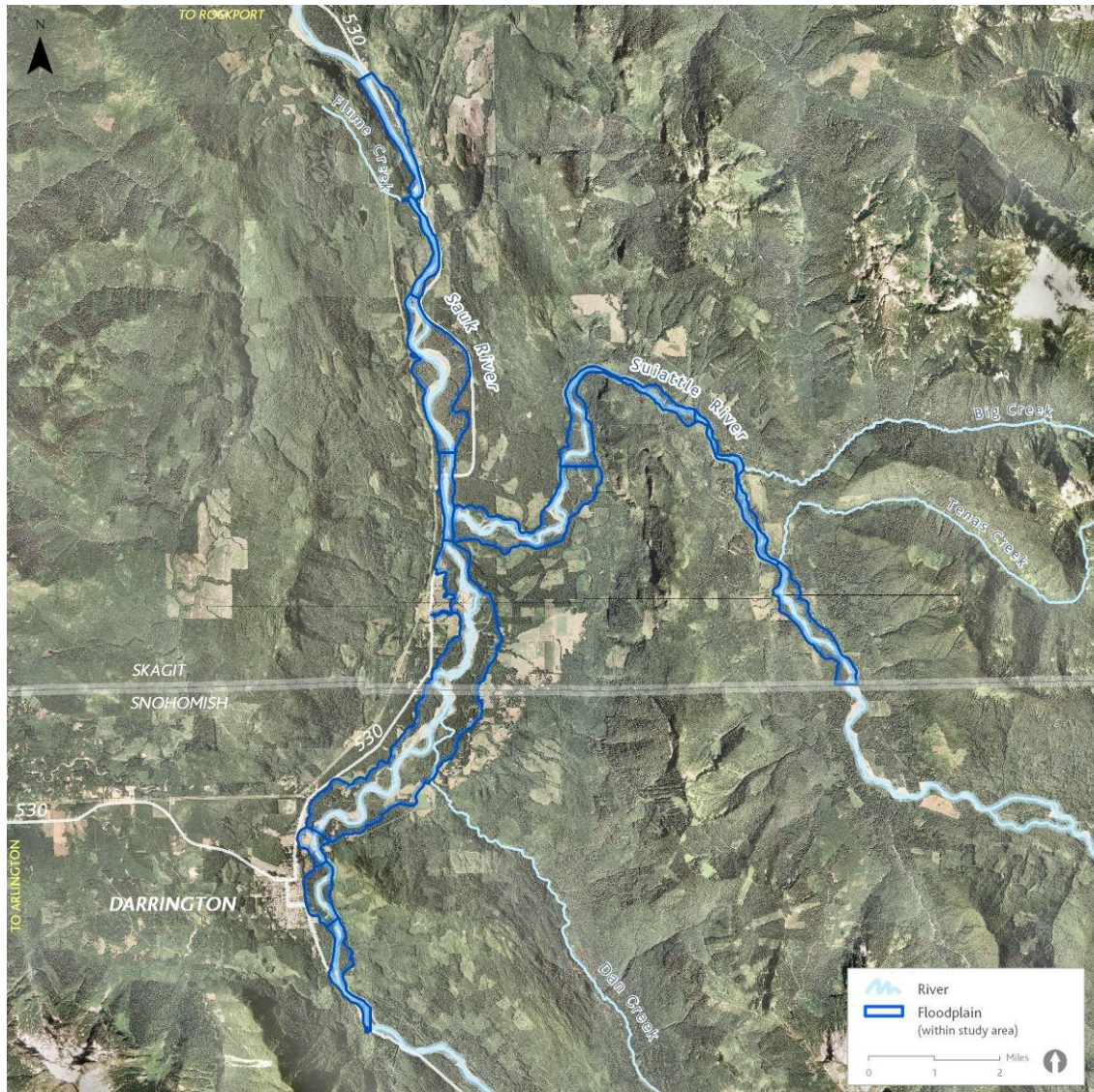


SAUK-SUIATTLE FLOODPLAIN ASSESSMENT

Final Report Project #07-1783
January, 2010



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INTRODUCTION

The Washington State Salmon Recovery Funding Board (SRFB) approved a combination assessment and acquisition proposal (07-1783) from The Nature Conservancy (TNC) and the Skagit Land Trust (SLT), submitted through the Skagit Watershed Council (SWC), to systematically identify and protect the highest priority private properties for salmon in floodplain reaches of the Sauk and Suiattle Rivers. This assessment completes the evaluation of major floodplain areas of the Skagit River. This project is an extension of two previous assessment and acquisition projects: the Middle Skagit Inventory and Assessment (00-1716) coordinated by the Skagit Land Trust (SLT), and the Upper Skagit Assessment and Acquisition (01-1369) coordinated by The Nature Conservancy. The project received oversight from the Skagit Watershed Council's Protection Committee (Appendix A).

The floodplain area covered by this assessment includes approximately 38 river miles along the mainstem Sauk and Suiattle Rivers (Figure 1). These reaches and associated floodplains are important for their productivity for spawning and rearing anadromous fish, and endangered summer Sauk and Suiattle Chinook populations in particular.

The project area represents some of the most intact floodplain habitat in the Skagit River. Although covered under federal Wild and Scenic River designation, important floodplain reaches are largely privately held and subject to growing rural development pressure. TNC and its partners recognized the importance of systematically evaluating properties in these target reaches, so that available protection funds can be spent in the most efficient way possible for the greatest benefit to salmon.

This report summarizes the assessment phase of the project, which began in January of 2009 and was completed this fall. The acquisition phase of the project began in 2008. Results of this assessment will be applied to acquisitions in both the current and future grants.

Products of this assessment include:

- Ranked list of floodplain properties in the Sauk and Suiattle Rivers
- Map of ranked properties
- Summary report of assessment methods and results
- GIS data and metadata

ASSESSMENT AREA

The Protection Committee defined the assessment area shown in Figure 1 as:

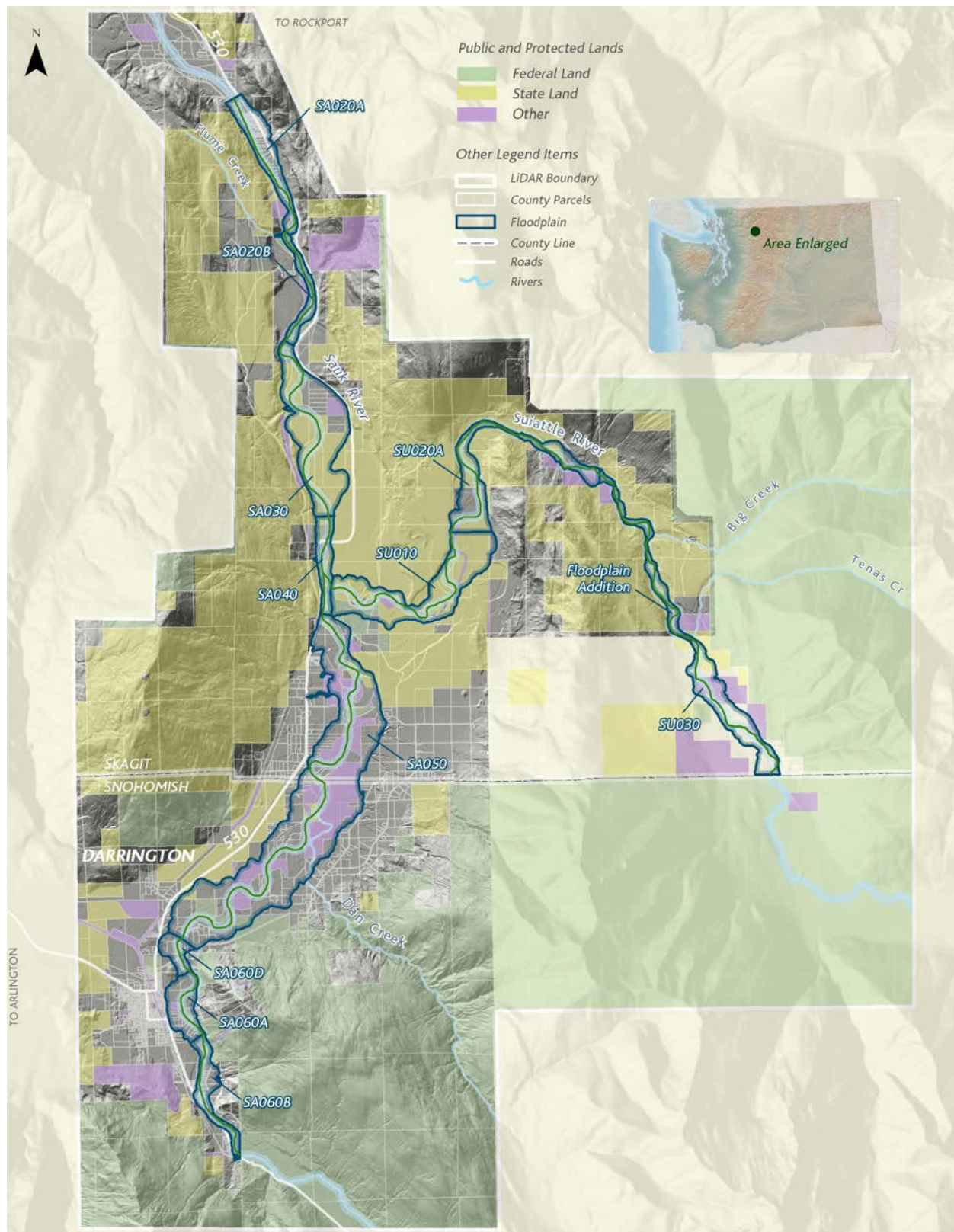


Figure 1. Extent of assessment area for the Sauk-Suiattle floodplain analysis outlined in blue. Public, tribally held, and conservation lands within this area were excluded from the analysis.

1. **Sauk River:** Floodplain areas from the USFS boundary just above Darrington downstream to where the Upper Skagit Assessment ended, excluding recreational parcels on the left bank upstream of Darrington and the Hampton Mill site.
2. **Dan Creek** alluvial fan.
3. **Suiattle River:** Floodplain areas from the USFS boundary to the confluence with the Sauk, including side channels and tributaries used by Chinook and the alluvial fans of Big Creek and Tenas Creek, both tributaries to the Suiattle River.

This assessment targets those parcels of 15 acres or larger as these are generally more cost effective and also potentially subject to subdivision. However, most floodplain parcels, except a few clusters of small recreational lots, were ultimately assessed because of a mosaic of zoning in two counties, the number of sub-standard lots suggesting variance or re-zoning potential, and potential for bank armoring against active channel migration in the study area,. The alluvial fans of Big and Tenas Creeks are currently in protected ownership status, so no parcels were included in this analysis in those areas.

A total of 122 ownership properties, defined as either single parcels or multiple adjacent parcels in a single ownership, were assessed. Eight additional properties with some portion in the floodplain were removed because they offered little relative floodplain value.

ASSESSMENT METHODS

Floodplain properties were evaluated based on the Skagit Watershed Council's reach-level formula (Appendix B). This formula allowed us to compare salmon habitat benefits across many different properties. No landowners were contacted or site visits made, as this would have been prohibitively time consuming given the number of properties evaluated.

The assessment score of "27" became a benchmark for targeted acquisitions in the Middle Skagit Inventory and Assessment report (Skagit Land Trust 2003) as protection efforts were focused on the top one-third of the ranked properties (66 out of 197) with scores of 27 or above. The subsequent Upper Skagit Assessment (The Nature Conservancy 2003) and this report have both used the same benchmark and property valuations in reporting results to maintain consistency and comparability of potential floodplain acquisitions.

As in the previous assessments, a number of assumptions were made to apply this method at the scale of the assessment. General methods are discussed here, while more specific application of the methods is found in Appendix D.

Parcel data available from Skagit and Snohomish Counties were used. The parcel data are representations of legal descriptions and not surveyed boundaries. Skagit County parcel data, particularly, are not well registered in places, contributing to potentially significant errors in some attributes, such as the area of parcels in the floodplain. Measurements such as habitat and floodplain area were made using ArcGIS software and thus are subject to both human error and those associated with remote sensing analysis. However, field measurements would have been extremely time consuming and far beyond the budget and scope of the project.

Rather than speculating about which protection tool would most likely be of interest to a landowner, we assumed the cost of protection to be the simple acquisition of each property. Multiple tax lots under a single ownership were evaluated as a single property and given a single assessment score. Data are available in a format to easily revise scores based on future potential rather than the property configurations assumed for this assessment.

Parcel valuations were assigned based on the attached April 17, 2009 memo to the Protection Committee revised from the 2003 assessment to include Snohomish County zoning categories and adopted on April 28, 2009 (Appendix C). The addition of the Snohomish County zoning valuations was completed by Phil Kincare, USFS, and Liz Merriman, TNC. Additional conditions were adopted or assumed during the course of the evaluation as detailed in Appendix D. The cost estimates do not include timber values which can vary widely, and do not include improvements such as houses and barns. It is impossible to do a detailed cost analysis for every ranked property, so the estimates are general, but we applied them as consistently as possible to the ranked properties.

The majority of parcels evaluated fall in either Rural Reserve Zoning in Skagit County or Rural Diversification in Snohomish County, many of these less than 10 acres in size. Per the valuation memo, these were all assigned a value of \$65,000 per lot, although actual lot sizes varied considerably. The assessment formula is sensitive to cost; therefore, actual or appraised parcel values could significantly alter those assessment numbers.

Reaches are those defined in the SWC Strategy Application (1998) and used for the purpose of estimating the formula's Connectivity Factor CFp (Appendix B) related to the percentage of the reach's floodplain area already in protected status. Values for this factor were calculated as follows in Table 1. The area in floodplain in Table 1 does not include the active river channel defined in Appendix D. An average of 46% of all floodplain within the assessment area is in public or protected status.

Table 1. Values for factor CFp defined in Appendix B.

Reach Number	Floodplain (ac)	Public & protected Lands (ac)	Percent of Reach Protected	CFp
SA020A	190	16	8%	1.012
SA020B*	47	40	86%	1.130
SA030	587	387	66%	1.099
SA040*	80	57	71%	1.107
SA050	1,530	544	36%	1.053
SA060D	77	0	0%	1.000
SA060A	164	14	9%	1.013
SA060B**	128	10	8%	1.012
SU010	500	410	82%	1.123
SU020A	325	226	70%	1.104
SU030**	266	86	32%	1.049
TOTALS	3,893	1,790	46%	

* no assessment parcels in this reach

** Only that portion of the reach within the assessment area

Channel Migration

The Sauk is an actively migrating river, particularly in the reach between the town of Darrington and the confluence with the Suittle River (Figure 2). Areas of increased erosion present an increased risk to instream habitat as potential locations of bank hardening. Acquisition of these properties would protect the floodplain processes that create and maintain habitat for fish that are disrupted by river training and bank protection structures installed to protect property and infrastructure. Although not a factor in the assessment formula, the Protection Committee wanted consideration of erosion risk included in this assessment, and initially proposed it as a screen for including parcels less than 15 acres in the assessment; however, this ultimately only excluded clusters of small recreational lots. While erosion potential, or the channel migration zone (CMZ), is noted for individual properties, no additional analysis was performed or weight assigned in the reach-level formula.

A number of floodplain properties were flagged as susceptible to erosion from active migration of the Sauk River. Two methods were used to identify these parcels. A recent analysis conducted by Snohomish County for the purpose of flood hazard mitigation in the Sauk River corridor (2008) provided an evaluation of relative erosion risk to properties in a portion of our study area based on erosion rates calculated from aerial photography and sediment transport modeling. As can be seen in Figure 2, there are few river bank areas not susceptible to erosion between Darrington and the confluence with the Suittle River. In addition, for the entire area of this assessment, parcels subject to erosion were inferred where parcel boundaries fall within the current active channel (Figure 3 example), the assumption being that the portion of the parcel falling within the active channel has eroded in the time since the parcel boundaries were surveyed. There may be some riverside properties entirely above the floodplain being protected from erosion and inhibiting migration but missed in the floodplain screen used in this analysis.

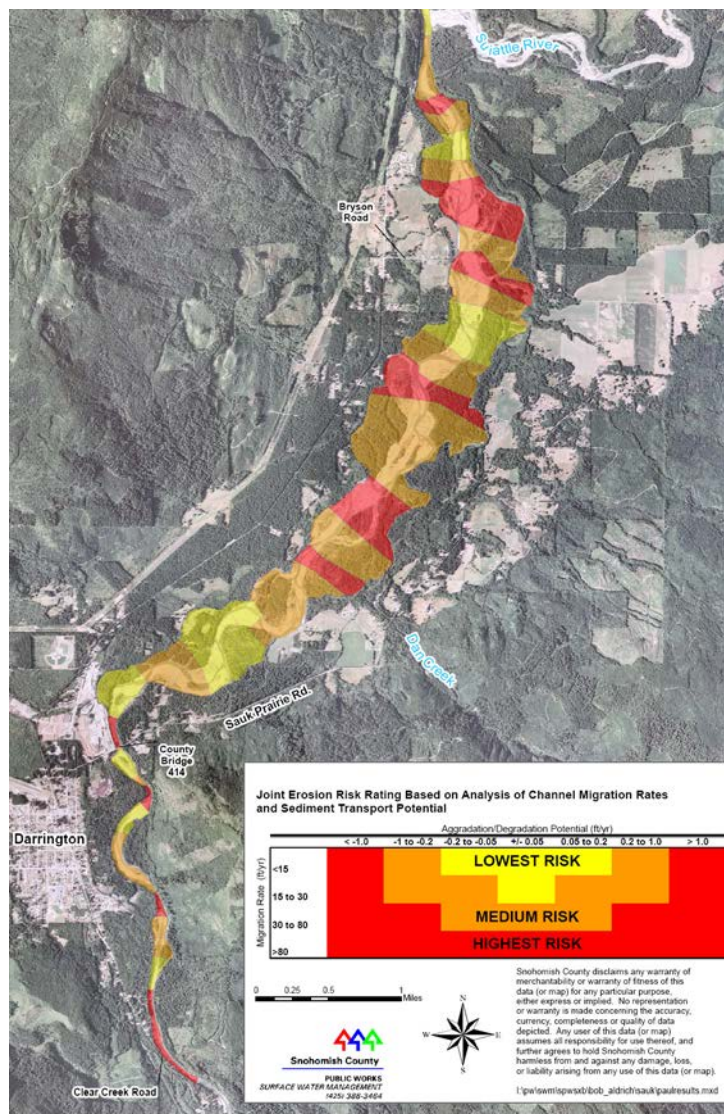


Figure 2. Erosion risk ratings from Snohomish County (2008) available for a portion of the assessment area.

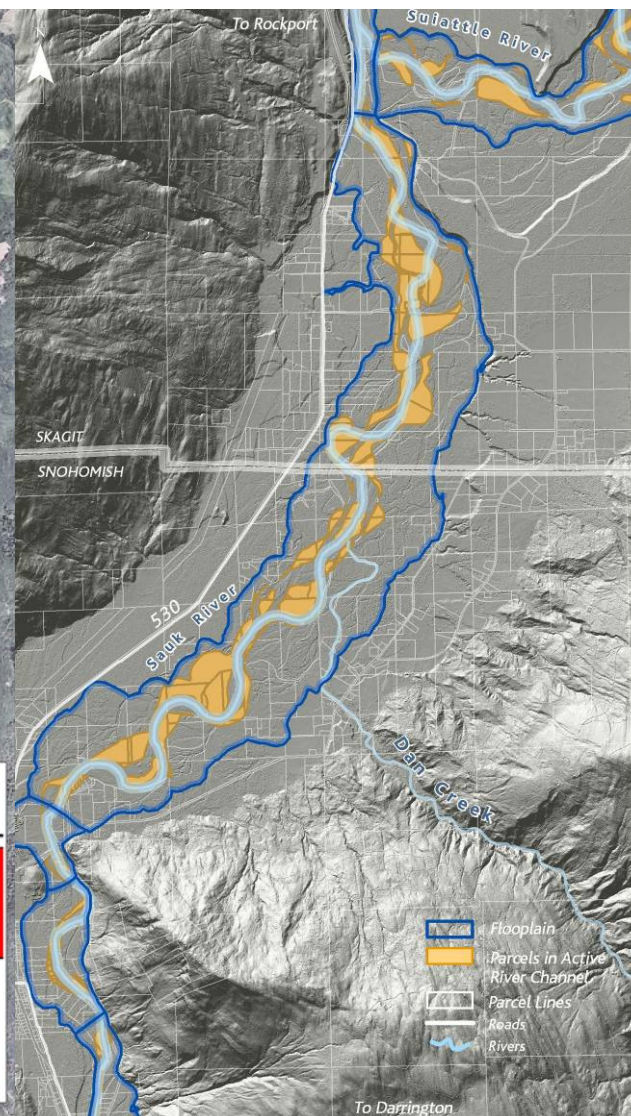


Figure 3. Highlighted parcels are those currently within the active river channel and assumed to have eroded since originally surveyed. The outside dark blue line is the geomorphic floodplain boundary used for this analysis; the inside blue line is the approximate mapped location of the main channel.

RESULTS

Half of the assessment properties (61/122) met or exceeded the acquisition threshold of “27” used in the previous assessments (Table 2). A bold line separates those properties with scores of 27 and above in Table 2. Properties in the top half include 64 percent of the total area and 66 percent of the floodplain area of the parcels assessed.

Properties of 15 acres or greater in size comprise 81.5 percent of the total. Because larger parcels make up the majority of the area assessed and are more cost effective to acquire, Protection Committee members requested the properties to be sorted by size within the top ranked and bottom ranked groups (Table 3). A bold line separates the two groups in Table 3 also.

Both Tables 2 and 3 also include the results of the “habitat benefit” portion of the formula (Appendix B). Except for a strong trend in some lower scoring properties, no relationship is found between the habitat benefit portion of the equation and the final assessment score (Figure 4) illustrating the influence of cost over benefit in the equation. Data points clustered in the upper right of Figure 4 represent those properties that would net the highest habitat and floodplain benefit for the cost. The plot also suggests that more habitat benefit could be gained from a few more expensive properties to the upper left of the plot than from more of the higher scoring properties to the lower right.

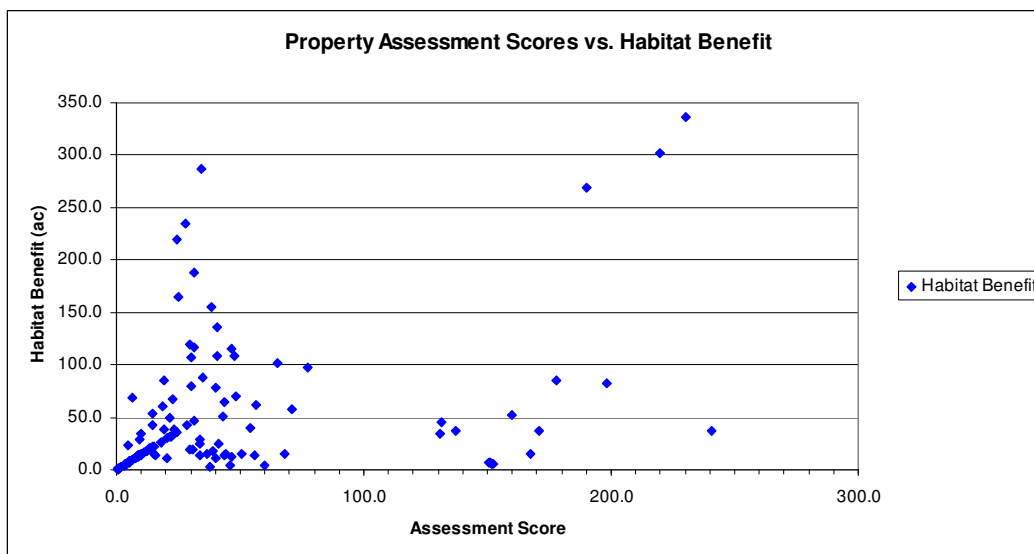


Figure 4. Plot of property assessment score results to the benefit only portion of the assessment equation. The top three scores are not shown on the plot.

The SWC reach-level formula includes a factor based on floodplain condition. Non-channel floodplain conditions on all assessment parcels were interpreted from recent aerial photography consistent with the SWC ranking formula (Appendix B). Our results show that for the properties assessed 82.3% of floodplain area is in functioning condition, 4.4% is moderately impaired and 13.3% is impaired. Less than an acre was interpreted as “isolated.” Isolated floodplain areas are

primarily associated with Highway 530 and the Concrete-Sauk Valley Road, and few floodplain parcels meeting our assessment area criteria were associated with those impediments.

Additional analysis was done at the request of the Protection Committee to identify properties that could score above the “27” threshold should floodplain conditions improve or less upland area included. These are identified in Table 3 and all clustered near the break in scores, but only after the properties were ordered by acreage. Only three properties with scores below 27 could meet or exceed that score should floodplain conditions improve to “functioning,” a reflection of the less than 18 percent of floodplain area in less than functioning condition. No adjustment was made to the cost in the formula for restoring or improving the floodplain condition. Seven properties could meet or exceed the 27 score if associated upland parcels or portions were not included in the acquisition. Only those properties with multiple parcels or sufficient area for subdivision and enough upland area to affect the cost were evaluated.

Three non-contiguous parcels owned by a single commercial forestry landowner in the Suiattle River contain approximately 98 acres of floodplain; more floodplain area than any other single landowner and over double the area of floodplain in the remaining nine Suiattle parcels combined.

SUMMARY RECOMMENDATIONS

1. Protection of the remaining floodplain should be a priority strategy for the Sauk River system by the Skagit Watershed Council based on the following results:
 - a. The high amount of floodplain already in public and protected lands: 46 percent overall, with five reaches over 65 percent (Table 1).
 - b. A high percent of the remaining floodplain in properties greater than 15 acres in size: 46 out of 122 properties (38 percent) are greater than 15 acres but comprise 81 percent of the total area, and those with assessment scores of 27 and above account for 54 percent of the floodplain area.
 - c. The high amount (82 percent) of floodplain in functioning condition and the lack of isolated floodplain and habitat on private land in need of restoration.
2. Assessment scores should be considered as relative and not absolute as many generalizations were made to apply the methods at the scale of this analysis, and the assessment formula is not designed to quantitatively assess all considerations relative to acquisitions. Different assumptions or additional considerations could include:
 - a. Actual or appraised parcel values.
 - b. Conditions that could improve assessment scores, such as different property configurations or a higher habitat benefit than assigned.
 - c. Some low scoring properties may be strategic to a larger acquisition or critical to habitat protection or restoration.
 - d. A low risk or threat associated with high scoring properties falling entirely within the floodway due to restricted development and the low value assigned to them.

3. A number of properties subject to erosion received low scores for a variety of reasons. However, acquisition of some of these may be strategic where a threat to habitat exists. Considering the number of these properties identified in the assessment in both high and low scoring groups, the Council's protection formula could be modified to include a factor for channel migration potential or a policy developed to address them.

Table 2. Ranked list of properties in Sauk-Suiattle River floodplain assessment (identifiers removed to preserve confidentiality). The bold line separates those properties with assessment scores of 27 and above.

Rank	B/C Cost Effectiveness (ft2/\$1)	Habitat Benefit (ac)	Assigned Owner Property #	Reach No.	Zoning	COUNTY	Acres	NOTES
1	2280.2	44.7	71	SA050	RD	Snohomish	6.8	Little left of this floodway parcel
2	858.4	26.2	14	SA030	SF	Skagit	8.4	CMZ; little left of this parcel
3	440.1	144.6	35	SA050	SF	Skagit	35.8	CMZ; 1/2 side chnl benefit
4	240.6	37.4	13	SA030	SF	Skagit	9.9	CMZ
5	230.5	336.9	49	SA050	RD	Snohomish	15.3	CMZ
6	219.9	302.3	113	SU020A	IF	Skagit	87.4	
7	198.4	81.8	16	SA030	SF	Skagit	19.9	CMZ
8	190.2	269.2	57	SA050	RD	Snohomish	67.7	CMZ
9	177.9	85.5	15	SA030	SF	Skagit	19.9	CMZ
10	171.1	37.3	100	SA060B	F	Snohomish	8.1	small lot in floodway
11	167.4	15.3	92	SA060A	RD	Snohomish	3.0	CMZ
12	160.1	51.8	6	SA030	IF	Skagit	19.3	Assume accretion to east
13	152.4	5.7	104	SA060B	F	Snohomish	1.4	small lot in floodway
14	151.6	5.3	105	SA060B	F	Snohomish	1.3	small lot in floodway
15	151.2	6.7	102	SA060B	F	Snohomish	1.6	small lot in floodway
16	150.5	6.5	103	SA060B	F	Snohomish	1.6	small lot in floodway
17	137.2	36.4	12	SA030	SF	Skagit	9.9	CMZ; Likely more fp benefit on this parcel
18	131.5	46.0	68	SA050	RD	Snohomish	13.0	CMZ
19	130.7	34.8	9	SA030	SF	Skagit	9.9	CMZ; Likey more fp benefit than visable
20	77.5	98.0	82	SA060A	F	Snohomish	21.2	
21	71.0	57.3	11	SA030	SF	Skagit	18.8	CMZ; Likely more fp benefit on this parcel
22	67.9	15.7	17	SA050	SF	Skagit	6.5	
23	64.9	101.3	48	SA050	F	Snohomish	18.8	CMZ, complicated parcel bdrys & erosion
24	60.0	4.0	86	SA060A	F	Snohomish	0.8	small lot
25	56.4	61.9	8	SA030	SF	Skagit	18.2	CMZ; Likely more fp benefit than visable
26	56.0	14.4	112	SU010	IF	Skagit	15.5	
27	53.9	39.6	124	SU030	IF	Skagit	8.7	
28	50.3	15.6	28	SA050	SF	Skagit	6.3	CMZ
29	48.3	70.6	73	SA050	RD	Snohomish	12.8	CMZ
30	47.7	108.8	115	SU030	IF	Skagit	151.4	
31	46.7	115.1	81	SA050	RD	Snohomish	28.5	Ownership straddles reach break
32	46.4	11.9	110	SA060B	F	Snohomish	2.9	
33	46.1	4.1	85	SA060A	F	Snohomish	1.1	small lot
34	44.4	15.5	122	SU030	IF	Skagit	5.1	
35	43.8	64.0	47	SA050	RD	Snohomish	11.8	CMZ
36	43.5	13.3	109	SA060B	F	Snohomish	3.4	
37	43.2	51.4	107	SA060B	F	Snohomish	19.7	
38	41.4	25.2	1	SA020A	SF	Skagit	6.9	Only includes portion forest landowner could break off & sell in RRV same as neighboring lots
39	41.0	135.7	20	SA050	A	Skagit	59.5	CMZ
40	40.8	107.9	45	SA050	RD	Snohomish	29.2	CMZ
41	40.3	10.5	123	SU030	IF	Skagit	3.2	
42	40.1	78.5	36	SA050	SF	Skagit	21.4	CMZ
43	38.7	17.9	118	SU030	IF		5.2	
44	38.2	155.2	33	SA050	RR	Skagit	66.9	CMZ
45	37.9	2.1	84	SA060A	F	Snohomish	0.6	small lot

Rank	B/C Cost Effectiveness (ft2/\$1)	Habitat Benefit (ac)	Assigned Owner Property #	Reach No.	Zoning	COUNTY	Acres	NOTES
46	36.7	14.5	83	SA060A	F	Snohomish	4.3	
47	35.1	87.9	34	SA050	SF	Skagit	41.3	CMZ; area of complicated off chnl estimates
48	34.6	286.9	69	SA050	RD	Snohomish	95.4	CMZ
49	33.9	13.6	116	SU030	IF	Skagit	5.1	
50	33.7	28.6	117	SU030	IF	Skagit	9.8	
51	33.6	25.1	108	SA060B	F	Snohomish	8.2	
52	31.6	116.6	60	SA050	RD	Snohomish	38.1	
53	31.6	188.0	125	SA050	RRV	Skagit	117.8	CMZ; previous assmt updated w/revised reach connectivity
54	31.5	46.9	98	SA060A	City	Snohomish	16.8	CMZ
55	30.7	19.3	121	SU030	IF	Skagit	7.2	
56	30.5	79.7	87	SA060A	City	Snohomish	22.7	City zoning; target acq Darrington Park; valuation based on appraisal
57	30.3	107.2	72	SA050	RD	Snohomish	31.4	CMZ
58	29.5	19.5	120	SU030	IF		7.5	
59	29.4	119.0	114	SU020A	IF	Skagit	246.0	
60	28.7	42.0	41	SA050	RD	Snohomish	11.1	CMZ
61	28.0	234.6	75	SA050	RD	Snohomish	36.9	CMZ portions of
62	25.1	164.7	51	SA050	RD	Snohomish	69.0	CMZ
63	24.2	220.2	62	SA050	RD	Snohomish	40.1	CMZ; 6 parcels
64	24.2	35.3	55	SA050	RD	Snohomish	16.0	
65	24.0	35.7	91	SA060A	RD	Snohomish	11.9	CMZ
66	23.3	38.2	111	SA060B	F	Snohomish	27.0	
67	23.0	33.7	76	SA050	RD	Snohomish	5.2	
68	22.4	66.7	97	SA060A	RD	Snohomish	18.1	CMZ
69	22.0	32.1	21	SA050	RRV	Skagit	10.7	CMZ
70	21.4	49.1	44	SA050	RD	Snohomish	20.4	CMZ
71	21.4	31.2	79	SA050	RD	Snohomish	11.2	
72	20.4	29.8	70	SA050	RD	Snohomish	9.1	CMZ
73	20.4	10.9	10	SA030	SF	Skagit	8.9	CMZ
74	19.2	85.0	53	SA050	RD	Snohomish	39.4	
75	19.1	38.5	106	SA060B	F	Snohomish	32.9	
76	18.6	60.6	59	SA050	RD	Snohomish	28.9	CMZ portions of
77	18.0	26.3	43	SA050	RD	Snohomish	18.1	CMZ
78	18.0	26.3	25	SA050	RRV	Skagit	10.4	CMZ
79	15.8	14.3	101	SA060B	F	Snohomish	10.0	
80	15.4	15.2	7	SA030	IF	Skagit	36.1	CMZ; Likely more fp benefit than visable
81	15.1	22.1	24	SA050	RRV	Skagit	9.6	CMZ
82	14.8	43.2	27	SA050	RRV	Skagit	19.1	CMZ; area of complicated river/parcel bdrys
83	14.7	54.0	58	SA050	RD	Snohomish	32.8	
84	14.6	21.3	22	SA050	RRV	Skagit	6.3	CMZ
85	13.8	20.1	23	SA050	RRV	Skagit	9.6	CMZ
86	13.7	20.0	80	SA050	RD	Snohomish	10.1	
87	13.5	20.1	96	SA060A	RD	Snohomish	5.2	CMZ
88	12.3	18.3	5	SA020A	RRV	Skagit	1.8	
89	12.1	18.0	90	SA060A	RD	Snohomish	5.3	CMZ
90	11.0	16.1	37	SA050	RRV	Skagit	17.8	CMZ
91	10.2	14.9	64	SA050	RD	Snohomish	5.1	
92	10.0	33.9	54	SA050	RD	Snohomish	30.1	
93	9.8	14.3	63	SA050	RD	Snohomish	8.8	
94	9.5	29.2	52	SA050	RD	Snohomish	27.3	

Rank	B/C Cost Effectiveness (ft2/\$1)	Habitat Benefit (ac)	Assigned Owner Property #	Reach No.	Zoning	COUNTY	Acres	NOTES
95	9.5	14.1	95	SA060A	RD	Snohomish	4.4	CMZ
96	9.4	14.0	89	SA060A	RD	Snohomish	4.3	CMZ
97	9.4	13.7	78	SA050	RD	Snohomish	2.7	
98	9.0	13.1	50	SA050	RD	Snohomish	7.1	CMZ
99	9.0	13.3	93	SA060A	RD	Snohomish	5.4	CMZ
100	8.8	13.1	2	SA020A	RRV	Skagit	2.9	
101	8.7	12.9	88	SA060A	RD	Snohomish	4.1	CMZ; possible CLC replacement parcel
102	8.0	11.9	3	SA020A	RRV	Skagit	1.6	
103	7.6	11.1	39	SA050	RD	Snohomish	4.3	
104	7.4	10.7	31	SA050	RR	Skagit	5.5	CMZ
105	6.6	9.7	32	SA050	RR	Skagit	5.0	CMZ
106	6.6	9.6	26	SA050	RRV	Skagit	5.6	CMZ
107	6.1	69.1	38	SA050	RD	Snohomish	84.0	CMZ portions of
108	5.5	8.0	67	SA050	RD	Snohomish	2.3	
109	5.4	8.0	56	SA050	RD	Snohomish	13.1	
110	5.4	7.9	30	SA050	RR	Skagit	5.3	CMZ
111	5.4	8.0	94	SA060A	City	Snohomish	5.1	
112	5.1	7.5	4	SA020A	RRV	Skagit	1.1	
113	4.4	22.9	99	SA060A	City	Snohomish	85.7	
114	3.9	5.8	65	SA050	RD	Snohomish	4.0	
115	3.5	5.1	46	SA050	RD	Snohomish	4.1	
116	3.3	4.7	77	SA050	RD	Snohomish	4.2	
117	3.0	4.4	40	SA050	RD	Snohomish	4.6	CMZ
118	1.7	2.5	29	SA050	RR	Skagit	5.7	
119	1.4	2.0	66	SA050	RD	Snohomish	1.7	
120	1.0	1.5	42	SA050	RD	Snohomish	1.2	CMZ; small parcel may be overpriced
121	0.8	1.2	19	SA050	A	Skagit	5.2	CMZ; small portion in degraded fp
122	0.4	0.6	18	SA050	A	Skagit	6.2	small portion in degraded fp

Table 3. Ranked properties from Table 2 sorted by size (acres) from largest to smallest within the top and bottom groups. Pink highlighted properties are those that would meet an assessment score of 27 or higher if the floodplain were all in the functioning condition; green highlighted properties are those that would meet an assessment score of 27 or higher if less upland area was incorporated.

Rank	B/C Cost Effective ness (ft2/\$1)	Habitat Benefit (ac)	Assigned Owner Property #	Reach No.	Zoning	COUNTY	Acres	NOTES
59	29.4	119.0	114	SU020A	IF	Skagit	246.0	
30	47.7	108.8	115	SU030	IF	Skagit	151.4	
53	31.6	188.0	125	SA050	RRV	Skagit	117.8	CMZ; previous assmt updated w/revised reach connectivity
48	34.6	286.9	69	SA050	RD	Snohomish	95.4	CMZ
6	219.9	302.3	113	SU020A	IF	Skagit	87.4	
8	190.2	269.2	57	SA050	RD	Snohomish	67.7	CMZ
44	38.2	155.2	33	SA050	RR	Skagit	66.9	CMZ
39	41.0	135.7	20	SA050	A	Skagit	59.5	CMZ
47	35.1	87.9	34	SA050	SF	Skagit	41.3	CMZ; area of complicated off chnl estimates
52	31.6	116.6	60	SA050	RD	Snohomish	38.1	
61	28.0	234.6	75	SA050	RD	Snohomish	36.9	CMZ portions of
3	440.1	144.6	35	SA050	SF	Skagit	35.8	CMZ; 1/2 side chnl benefit
57	30.3	107.2	72	SA050	RD	Snohomish	31.4	CMZ
40	40.8	107.9	45	SA050	RD	Snohomish	29.2	CMZ
31	46.7	115.1	81	SA050	RD	Snohomish	28.5	Ownership straddles reach break
56	30.5	79.7	87	SA060A	City	Snohomish	22.7	City zoning; target acq Darrington Park; valuation based on appraisal
42	40.1	78.5	36	SA050	SF	Skagit	21.4	CMZ
20	77.5	98.0	82	SA060A	F	Snohomish	21.2	
7	198.4	81.8	16	SA030	SF	Skagit	19.9	CMZ
9	177.9	85.5	15	SA030	SF	Skagit	19.9	CMZ
37	43.2	51.4	107	SA060B	F	Snohomish	19.7	
12	160.1	51.8	6	SA030	IF	Skagit	19.3	Assume accretion to east
21	71.0	57.3	11	SA030	SF	Skagit	18.8	CMZ; Likely more fp benefit on this parcel
23	64.9	101.3	48	SA050	F	Snohomish	18.8	CMZ, complicated parcel bdrys & erosion
25	56.4	61.9	8	SA030	SF	Skagit	18.2	CMZ; Likely more fp benefit than visible
54	31.5	46.9	98	SA060A	City	Snohomish	16.8	CMZ
26	56.0	14.4	112	SU010	IF	Skagit	15.5	
5	230.5	336.9	49	SA050	RD	Snohomish	15.3	CMZ
18	131.5	46.0	68	SA050	RD	Snohomish	13.0	CMZ
29	48.3	70.6	73	SA050	RD	Snohomish	12.8	CMZ
35	43.8	64.0	47	SA050	RD	Snohomish	11.8	CMZ
60	28.7	42.0	41	SA050	RD	Snohomish	11.1	CMZ
19	130.7	34.8	9	SA030	SF	Skagit	9.9	CMZ; Likey more fp benefit than visible
4	240.6	37.4	13	SA030	SF	Skagit	9.9	CMZ
17	137.2	36.4	12	SA030	SF	Skagit	9.9	CMZ; Likely more fp benefit on this parcel
50	33.7	28.6	117	SU030	IF	Skagit	9.8	
27	53.9	39.6	124	SU030	IF	Skagit	8.7	
2	858.4	26.2	14	SA030	SF	Skagit	8.4	CMZ; little left of this parcel
51	33.6	25.1	108	SA060B	F	Snohomish	8.2	
10	171.1	37.3	100	SA060B	F	Snohomish	8.1	small lot in floodway
58	29.5	19.5	120	SU030	IF		7.5	
55	30.7	19.3	121	SU030	IF	Skagit	7.2	

Rank	B/C Cost Effective ness (ft2/\$1)	Habitat Benefit (ac)	Assigned Owner Property #	Reach No.	Zoning	COUNTY	Acres	NOTES
38	41.4	25.2	1	SA020A	SF	Skagit	6.9	Only includes portion forest landowner could break off & sell in RRV same as neighboring lots
1	2280.2	44.7	71	SA050	RD	Snohomish	6.8	Little left of this floodway parcel
22	67.9	15.7	17	SA050	SF	Skagit	6.5	
28	50.3	15.6	28	SA050	SF	Skagit	6.3	CMZ
43	38.7	17.9	118	SU030	IF		5.2	
49	33.9	13.6	116	SU030	IF	Skagit	5.1	
34	44.4	15.5	122	SU030	IF	Skagit	5.1	
46	36.7	14.5	83	SA060A	F	Snohomish	4.3	
36	43.5	13.3	109	SA060B	F	Snohomish	3.4	
41	40.3	10.5	123	SU030	IF	Skagit	3.2	
11	167.4	15.3	92	SA060A	RD	Snohomish	3.0	CMZ
32	46.4	11.9	110	SA060B	F	Snohomish	2.9	
15	151.2	6.7	102	SA060B	F	Snohomish	1.6	small lot in floodway
16	150.5	6.5	103	SA060B	F	Snohomish	1.6	small lot in floodway
13	152.4	5.7	104	SA060B	F	Snohomish	1.4	small lot in floodway
14	151.6	5.3	105	SA060B	F	Snohomish	1.3	small lot in floodway
33	46.1	4.1	85	SA060A	F	Snohomish	1.1	small lot
24	60.0	4.0	86	SA060A	F	Snohomish	0.8	small lot
45	37.9	2.1	84	SA060A	F	Snohomish	0.6	small lot
113	4.4	22.9	99	SA060A	City	Snohomish	85.7	
107	6.1	69.1	38	SA050	RD	Snohomish	84.0	CMZ portions of
62	25.1	164.7	51	SA050	RD	Snohomish	69.0	CMZ
63	24.2	220.2	62	SA050	RD	Snohomish	40.1	CMZ; 6 parcels
74	19.2	85.0	53	SA050	RD	Snohomish	39.4	
80	15.4	15.2	7	SA030	IF	Skagit	36.1	CMZ; Likely more fp benefit than visable
75	19.1	38.5	106	SA060B	F	Snohomish	32.9	
83	14.7	54.0	58	SA050	RD	Snohomish	32.8	
92	10.0	33.9	54	SA050	RD	Snohomish	30.1	
76	18.6	60.6	59	SA050	RD	Snohomish	28.9	CMZ portions of
94	9.5	29.2	52	SA050	RD	Snohomish	27.3	
66	23.3	38.2	111	SA060B	F	Snohomish	27.0	
70	21.4	49.1	44	SA050	RD	Snohomish	20.4	CMZ
82	14.8	43.2	27	SA050	RRV	Skagit	19.1	CMZ; area of complicated river/parcel bdrys
77	18.0	26.3	43	SA050	RD	Snohomish	18.1	CMZ
68	22.4	66.7	97	SA060A	RD	Snohomish	18.1	CMZ
90	11.0	16.1	37	SA050	RRV	Skagit	17.8	CMZ
64	24.2	35.3	55	SA050	RD	Snohomish	16.0	
109	5.4	8.0	56	SA050	RD	Snohomish	13.1	
65	24.0	35.7	91	SA060A	RD	Snohomish	11.9	CMZ
71	21.4	31.2	79	SA050	RD	Snohomish	11.2	
69	22.0	32.1	21	SA050	RRV	Skagit	10.7	CMZ
78	18.0	26.3	25	SA050	RRV	Skagit	10.4	CMZ
86	13.7	20.0	80	SA050	RD	Snohomish	10.1	
79	15.8	14.3	101	SA060B	F	Snohomish	10.0	
85	13.8	20.1	23	SA050	RRV	Skagit	9.6	CMZ
81	15.1	22.1	24	SA050	RRV	Skagit	9.6	CMZ
72	20.4	29.8	70	SA050	RD	Snohomish	9.1	CMZ
73	20.4	10.9	10	SA030	SF	Skagit	8.9	CMZ
93	9.8	14.3	63	SA050	RD	Snohomish	8.8	

Rank	B/C Cost Effectiveness (ft2/\$1)	Habitat Benefit (ac)	Assigned Owner Property #	Reach No.	Zoning	COUNTY	Acres	NOTES
98	9.0	13.1	50	SA050	RD	Snohomish	7.1	CMZ
84	14.6	21.3	22	SA050	RRV	Skagit	6.3	CMZ
122	0.4	0.6	18	SA050	A	Skagit	6.2	small portion in degraded fp
118	1.7	2.5	29	SA050	RR	Skagit	5.7	
106	6.6	9.6	26	SA050	RRV	Skagit	5.6	CMZ
104	7.4	10.7	31	SA050	RR	Skagit	5.5	CMZ
99	9.0	13.3	93	SA060A	RD	Snohomish	5.4	CMZ
110	5.4	7.9	30	SA050	RR	Skagit	5.3	CMZ
89	12.1	18.0	90	SA060A	RD	Snohomish	5.3	CMZ
121	0.8	1.2	19	SA050	A	Skagit	5.2	CMZ; small portion in degraded fp
87	13.5	20.1	96	SA060A	RD	Snohomish	5.2	CMZ
67	23.0	33.7	76	SA050	RD	Snohomish	5.2	
111	5.4	8.0	94	SA060A	City	Snohomish	5.1	
91	10.2	14.9	64	SA050	RD	Snohomish	5.1	
105	6.6	9.7	32	SA050	RR	Skagit	5.0	CMZ
117	3.0	4.4	40	SA050	RD	Snohomish	4.6	CMZ
95	9.5	14.1	95	SA060A	RD	Snohomish	4.4	CMZ
103	7.6	11.1	39	SA050	RD	Snohomish	4.3	
96	9.4	14.0	89	SA060A	RD	Snohomish	4.3	CMZ
116	3.3	4.7	77	SA050	RD	Snohomish	4.2	
101	8.7	12.9	88	SA060A	RD	Snohomish	4.1	CMZ; possible CLC replacement parcel
115	3.5	5.1	46	SA050	RD	Snohomish	4.1	
114	3.9	5.8	65	SA050	RD	Snohomish	4.0	
100	8.8	13.1	2	SA020A	RRV	Skagit	2.9	
97	9.4	13.7	78	SA050	RD	Snohomish	2.7	
108	5.5	8.0	67	SA050	RD	Snohomish	2.3	
88	12.3	18.3	5	SA020A	RRV	Skagit	1.8	
119	1.4	2.0	66	SA050	RD	Snohomish	1.7	
102	8.0	11.9	3	SA020A	RRV	Skagit	1.6	
120	1.0	1.5	42	SA050	RD	Snohomish	1.2	CMZ; small parcel may be overpriced
112	5.1	7.5	4	SA020A	RRV	Skagit	1.1	

REFERENCES

- Beamer, E., T. Beechie, B. Perkowski, and J. Klochak. 2000. Application of the Skagit Watershed Council's Strategy. River basin analysis of the Skagit and Samish Basins: Tools for Salmon Habitat Restoration and Protection. Prepared by the Habitat Restoration and Protection Committee for the Skagit Watershed Council. Working Document dated February 2000, 80 p.
- Skagit Land Trust. 2003. Middle Skagit Inventory and Assessment. Final report for IAC grant 00-1716. June, 2003, 26 p.
- Skagit Watershed Council. 1998. Habitat Protection and Restoration Strategy. Prepared by the Habitat Restoration and Protection Committee of the Skagit Watershed Council; October 13, 1998, 79 p.
- Snohomish County Public Works. 2008. Sauk River Corridor Assessment Project Report: Habitat and Bank Conditions & Geomorphic Assessment, Snohomish County Public Works Surface Water Management March 2008.
- The Nature Conservancy. 2003. Upper Skagit Assessment/Acquisition Project Final Assessment Report. IAC grant 01-1369, 22 p.

Appendix A
Protection Committee Advisory members

The Nature Conservancy - Bob Carey
Skagit System Cooperative - Steve Hinton
US Forest Service – Phil Kincare
Seattle City Light - Ron Tressler
Skagit Land Trust – Martha Bray
Skagit Watershed Council – Mary Raines
Washington Dept. of Fish & Wildlife – Bob Warinner

Appendix B

Skagit Watershed Council Reach-Level Ranking Formula

SKAGIT WATERSHED COUNCIL

Reach Level Protection Projects

Land acquisition and easement projects are typically intended to (1) protect those areas where high quality habitat exists, (2) prevent further disruptions to habitat-forming processes, and/or (3) to allow for recovery of habitat-forming processes. The Council, as a matter of course, recognizes the importance of land protection and has adopted a “*protect the best first*” approach. This section deals only with reach level acquisition and easement projects. Non-reach level projects, that is, projects outside of the channel migration zone, will be treated in the Watershed Level Land Acquisition and Easement Projects section of the Watershed Level Projects chapter.

Screening

Projects that acquire land or easements where the only reach level habitat type present in the parcel is “isolated” would be inconsistent with the Strategy, if there are no immediate plans to reconnect the isolated habitat. Projects proposing to acquire isolated habitat for the purpose of reconnecting it will be consider restoration projects and will be prioritized within the restoration project section of the Strategy (SWC 2000).

Cost effectiveness

The cost-effectiveness equation for prioritizing reach level protection projects is:

$$\text{cost-effectiveness} = B/C,$$

where

$$B = (RH+FP)*CF*TF,$$

and

$$C = CM*P.$$

RH is the benefit estimated from the area of reach level habitat within the parcel and P is the purchase price of the parcel or easement. FP is the benefit of non-channel floodplain habitat within the parcel. CF is the “connectivity” factor for the parcel. TF is the “threat” factor. CM is the “cost” modifier. Results are presented in the unit “benefit area” in square feet per unit \$1.

Reach Level Habitat Benefit (RH)

The reach level habitat benefit (RH) calculations first require that we have a rating of the Value (V) of habitats in a reach (Table 1, SWC 1998). The ratings by habitat type are: Isolated = 0, Secondary = 1, Degraded = 1, Important = 2, and Key = 3. RH is calculated as the numeric habitat type rating (V), multiplied by the area of the reach level habitat types (Table 1 in the Strategy) affected by the project (A):

$$RH = V * A$$

Table 1. Designation of generalized habitat types based on habitat/species matrix in Appendix 1 (SWC 1998).

Reach Level Habitat Type	if “disconnected” (human caused)	if “disturbed” (human caused)	if “relatively intact” (pristine)
Tributaries Reaches (channels < 50 meters bankfull width):			
pool riffle	isolated	degraded - important	key
forced pool riffle	isolated	degraded - important	key
plane bed	isolated	degraded	secondary
step-pool/cascade	isolated	secondary	secondary
Main River Reaches (channels > 50 meters bankfull width):			
main channel	isolated	degraded - important	key
off-channel habitat (e.g., ponds, sloughs, side channels, oxbow lakes, etc.)	isolated	degraded - important	key
Estuary:			
estuarine emergent marsh	isolated	unknown ^a	key
blind channel	isolated	unknown ^a	key
subsidiary channel	isolated	unknown ^a	key
main channel	isolated	unknown ^a	key

The rating results of habitat types within a parcel are a function of applying the screens for each landscape process considered in the Strategy (e.g., hydrology, sediment, water quality, etc.). Reach level habitat area (A) is calculated as the length of the habitat within the parcel (e.g., an off-channel segment) multiplied by the average width of the habitat for reach level habitat segments completely within the parcel. Only one half of the area is credited to reach level habitats where only one side of the reach level habitat is within the parcel. An example includes parcels adjacent to mainstem river segments.

Non-channel Floodplain Benefit (FP)

In areas where channels naturally migrate or avulse over two bank-full channel widths, we give the parcel added value for non-channel areas in the 100 year floodplain that are not isolated from mainstem river reaches or estuarine habitats. (Note: the floodplain areas, mainstem reaches, and estuary reaches are all SWC GIS products, available in June 1999) No benefit is given to floodplain areas isolated through hydromodification. The reason for including this benefit is over the long-term, current non-channel floodplain

areas could become one or more of the different reach level habitats. Obviously, isolated areas are precluded from this potential benefit.

Vegetation land cover is the factor considered when designating whether “connected” non-channel floodplain areas are impaired, moderately impaired, or functioning. Based on Pollock (1998), the non-channel floodplain area of the Stillaguamish River Basin before the majority of European settlement (circa 1873) was characterized by mixed hardwood and conifer forest stands. The stands were 36% coniferous (by stem frequency) with median dbh for conifers between 16 and 20 inches. The dominant conifer species within floodplain forests was hemlock (one half of the 36%) while Red Alder dominated the hardwoods (31% of all floodplain tree stems). The median dbh for hardwoods was between 8 and 12 inches. Nineteen percent (19%) of the floodplain conifers were large (>20 inches) while only 9% of the hardwoods were large. Because the Stillaguamish is adjacent to the Skagit, it is expected that its natural vegetative composition is similar. Pollock’s research therefore provides a reference point in which we can compare existing floodplain areas to estimated historic conditions for the Skagit River Basin.

Pollock’s research seems to indicate that relatively young (median age around 20 years) deciduous dominated forests were the norm in floodplain areas of the Stillaguamish River. Larger trees and a conifer component were certainly present in floodplain forest stands, but to a much lesser degree than the large sized conifer dominated stands of upland forests or along non-migrating channels. Floodplain forest stand characteristics are thought to be primarily shaped by relatively frequent disturbances by natural fluvial processes and beavers.

With this in mind, we consider non-channel floodplain areas of the Skagit and Samish River Basins upstream of the estuarine emergent marsh zone without forested land cover due to man’s activities as “impaired”. Areas of non-channel floodplain with forest stands where the median tree size is less than 12 inches dbh are considered “moderately impaired”. Areas of floodplain with forest stands where the median tree size is greater than 12 inches dbh are considered “functioning”. Areas of floodplain where the median tree size is less than 12 inches dbh due to the effects of natural landscape processes, such as fires and floods, are also considered “functioning”. To calculate the floodplain benefit (FP) for a parcel, the acreage of non-channel floodplain are multiplied by the following ratings: isolated = 0, impaired = 1, moderately impaired = 2, and functioning = 3. The value is added to the reach level benefit (RH) of the parcel.

Connectivity Factor (CF)

Reach level processes function across areas larger than individual parcels. The protection of small, disconnected parcels amongst disturbed areas will not provide adequate conditions for the restoration and maintenance of healthy salmonid stocks. Therefore, in order to protect and/or restore natural processes, land acquisition and easement projects need to occur strategically, such that larger areas of riparian lands and reach level habitats are protected. Parcels in areas where habitat conditions will be maintained in natural conditions in perpetuity by landowners are considered to be “protected”. The objective of

the connectivity factor (CF) is to give preference to protection projects aimed at parcels adjacent to other protected parcels, or within a reach with a high percentage of its floodplain and reach level habitat area already under protected status.

The connectivity factor has the potential to inflate the current habitat benefit (RH + FP) by no more than 20%. Two threat factors are considered: “adjacency” and “percent of reach protected”, where

$$CF = a + p + 1.00$$

Adjacency (a) to other protected lands can inflate the benefit value of a potential acquisition or easement by 5%. If a parcel is adjacent to a protected parcel, then the benefit is inflated by 5% ($a = .05$). If the parcel is not adjacent to a protected parcel there is no change to the benefit value ($a = 0$).

Up to 15% inflation of the benefit value is possible when considering the percentage of the reach’s floodplain area already in protected status (p). This factor is determined by multiplying the percentage of the reach’s floodplain area in protected status by 15%. If the entire reach level floodplain was already protected, except the parcel being considered, the full 15% inflation to the parcel’s benefit would be credited ($p = 100\% \times 15\% = .15$). If no reach level floodplain was in protected status, then no credit would be given ($p = 0\% \times 15\% = 0$).

Threat Factor (TF)

The threat of habitat degradation to a parcel is an important factor evaluating the value of acquiring land or easements within a river basin. A threat factor (TF) is incorporated by inflating the current reach level habitat benefit (RH + FP) by up to 20%. Two factors are considered: “potential” (up to 10% inflation of the benefit) and “known imminent” (up to 10% inflation of the benefit), where

$$TF = pt + ki + 1.00$$

The potential threat (pt) factor is meant to capture non-immediate threats posed to a parcel based on the parcel’s zoning or land use designation. We are using the land use designation because of the known relationship between land uses and aquatic habitat degradation (see hydrology and water quality sections). The effective impervious surface percentages associated with various land uses are an accepted means of predicting instream habitat conditions from a variety of causes including: changed hydrologic functions, riparian clearing, bank stabilization, water and sediment quality (Booth and Jackson 1997). Also, the relationship between the amount of effective impervious surface per unit area by different zoning or land use designations has been established (e.g., Dinicola 1989). Table 1 shows the percentage the benefit of a parcel is inflated by its land use/zoning category.

Table 1: Matrix to estimate potential threat (*pt*) factor

Land Use/Zoning Designation	Percent Effective Impervious Area (EIA) *	Inflation Factor (pt)
Wilderness Area/Protected Area	0% to 2%	0%
Forest/Agriculture/Recreation Area/Parks with developed areas (e.g., campgrounds, ball fields)/Low Density Residential	1% to 4%	4%
Medium-High Density Residential/Urban/Industrial	10% to 86%	10%

* Dinicola 1989; Beyerlein 1996

In addition to potential threats, we will capture known imminent (*ki*) or immediate threats posed to a parcel by certain planned activities. We believe it is critical to inflate benefits based on immediate threats because of the somewhat opportunistic nature of parcel availability and the fact that “imminent” threats are documented and could result in long-term negative impacts to aquatic habitats, if not prevented by the land protection action (e.g., purchase or conservation easement). Table 2 summarizes the actions that we regard as imminent threats, the information that would be necessary to document these threats, and the inflation factor associated with these threats.

Table 2: Matrix to estimate known imminent (*ki*) threat factor

Planned Activity	Documentation	Inflation Factor (ki)
Timber harvest within CMZ or specified buffer width for adequate protection of stream type	Forest Practice Application	5%
Zoning change or conversion to a more intensive land use: no greater than low density residential	Rezone hearing	5%
Zoning change or conversion to a more intensive land use: equal to or greater than medium density residential	Rezone hearing	10%
Parcel for sale	Real estate listing	5%
Parcel for sale with additional buildable lots	Real estate listing	10%
Proposed rip-rapping, diking, or other hydromodification	Permit application	10%
Proposed dredging	Permit application	10%
Road building within floodplain or 200 feet of class 1-2 water	Permit application	10%

Cost Modifier

A cost modifier was not applied to properties in this reach-scale analysis.

When applied, the intention of the cost modifier (CM) is simply to give credit to “good buys” and penalize “bad buys”, relative to market value. As such, it will help to dissuade groups from pursuing above market value purchases that will drive prices up within the area as a whole. The cost modifier is calculated by dividing the sale price (P) by the appraised market value (AV) of the parcel:

$$CM = P / AV$$

The cost quotient (C) is then determined by multiplying the cost modifier by the purchase price:

$$C = CM * P.$$

Appendix C

Property Valuation Memo Approved April 20, 2009 by SWC Protection Committee

MEMORANDUM

TO: SWC Protection Committee

FROM: TNC AND USFS (from Linda Kramme TNC)

DATE: April 17, 2009

SUBJECT: Cost Assumptions -- Skagit, Sauk, and Suiattle floodplain property assessments

This memo summarizes the background and property value estimates established for the Skagit Watershed Council's cost-effectiveness ranking formula for the Upper Skagit Assessment in 2003. To maintain consistency through time and allow the comparison of tracts evaluated in different years, SWC's Protection Committee decided to continue to use these same values for assessments conducted as part of the ongoing Skagit Floodplain Acquisition project, including the Sauk-Suiattle reach level assessment.

A. Summary of Skagit County Zoning in Project Area (and minimum lot size):

- *Rural Reserve*: 10 ac. min (w/CARD*, density of 2 building sites per 10 acres allowed, but lot sizes limited to one acre w/ remainder restricted to conservation, or included with one of the lots)
- *Industrial Forest*: 80 ac. Min
- *Rural Resource*: 40 ac. min (w/CARD, density of 4 building sites per 40 acres allowed, but lot sizes limited to one acre w/ remainder restricted to conservation, or included with one of the lots)
- *Agricultural*: 40 ac. min (CARD allowed to subdivide, but no density bonus)
- *Secondary Forest*: 20 ac. min (CARD allowed to subdivide, but no density bonus)
- *Rural Intermediate*: 2.5 ac. min (Marblemount)
- *Rural Village Residential* (Marblemount)

*CARD = Conservation and Reserve Development

Summary of Snohomish County Zoning in Project Area (and minimum lot size):

- *Rural Diversification*: 200,000 sq. ft. ~ 4.6 acres minimum lot size - lot width not less than 165'.
- *Rural Cluster*: allows one house per 2.3 acres
- *Rural – Forest Lands*: 20 ac. – minimum lot size – lot width not less than 300'.

- *Urban - Heavy Industry*: no minimum lot size or lot dimension. Residential housing incompatible with zone. (HI zone within Hampton Timber property.
- *Urban Growth Area*: Town of Darrington.

B. Valuation Factors to Consider in our estimates:

- 1) Zoning
- 2) Floodplain layer (can build but must be 1' above base level of flood)
- 3) FEMA Floodway boundary – can't build any permanent structure w/in floodway. BUT, if already structure there, it's grandfathered in – can add to it as long as w/in footprint.
- 4) Acreage
- 5) River frontage
- 6) “Utility of land” – i.e., agricultural vs. timbered riparian

[NOTE: impossible to fully consider each of these factors in our estimates – have to make some general assumptions and conclusions in order to establish value estimates for SWC formula]

C. Unknown Factors (can't include in value estimates unless know more about property)

- 1) merchantable timber
- 2) setting
- 3) aesthetics
- 4) CMZ

D. Value Estimates for SWC ranking formula – by zoning type

- 1) *Agricultural Zoning (1/40 ac)*: Farmland values in this area are estimated to range from \$1,800 - \$2,200/acre (excluding development rights). Farmland is typically less productive this far upstream compared to downstream, so **for our ranking formula we will use \$1,800/ac**. Also, we will **add an additional \$25,000 for each development right** associated with the property under this zoning (i.e., for each 40 acres). [NOTE: SLT had added \$30K - \$40K per development right, but our area is farther from population centers/jobs, so lower value is warranted].
- 2) *Rural Resource Zoning (1/40 ac)*: \$2,400 - \$3,000/ac. This includes consideration of development rights, because typically larger parcels sell more on a per acre basis than on a per lot basis. **We will use \$2,700/ac for the formula**. [NOTE: maybe we should consider assigning a higher threat value parcels in RR zoning if >20 acres - might be appropriate given ease of division]
- 3) *Secondary Forest Zoning (1/20 ac)*: Valuation for this zoning can be considered similar to Rural Resource – it allows one-half the density of Rural Resource, but no option of bonus credits under CARD. Therefore, **we will use \$2,700/ac for the formula**. [NOTE: it has been mentioned that it may be easier to get a variance for a lot size <20 acres under this zoning, but I checked this with Han and Brenda and neither said that they recalled making the statement and they aren't sure whether it's

true. So, at this point this factor will not additionally influence the threat ranking, but we will continue to investigate this issue.]

3b) Snohomish County Rural-Forest Lands (1/20 ac): **We will use \$2,700/ac for the formula.**

4) Rural Reserve Zoning (1/10 ac):

- For properties >20 acres: Properties under this zoning can range from \$3,000 - \$5,000/ac, which is a higher value than for Rural Resource because of the higher permitted density. **We will use \$4,000/ac for the formula.**

4b) Snohomish County Rural Diversification (1/4.6 ac)

- For properties >20 acres **we will use \$5,000/ac for the formula.** The increase over the Skagit County rate is based on the higher development density allowed.

5) Rural Reserve Zoning (1/10 ac)

- For properties ≤20 acres: Smaller properties more typically sell on a “per lot” basis and on residential appeal, than on a “per acre” basis. These smaller parcels frequently sell for \$60,000 - \$70,000 or more per lot. **Therefore, for any property ≤20 acres, we will use a value of \$65,000 per lot** (i.e., for 20 acre parcel, 2 lots would be legally permissible as long as out of floodway).

5b) Snohomish County Rural Diversification

- For properties ≤20 acres **we will use a value of \$65,000 per lot for the formula.**

6) Rural Village Residential (1/1-2.5 ac) and Rural Intermediate (1/2.5 ac)

- Like small Rural Reserve parcels (see above), these properties typically sell on a “per lot” basis and on residential appeal, than on a “per acre” basis. The Comp Plan allows for a maximum density of 1 house per 1 acre if public water is available and 1 house per 2.5 acres if no public water is available with the Rural Village designation. Rural Intermediate zoning is one house per 2.5 acres. These smaller parcels frequently sell for \$60,000 - \$70,000 or more per lot. **Therefore, for any property in this zoning, we will use a value of \$65,000 per developable lot** (i.e., for 5 acre parcel without public water, 2 lots would be legally permissible as long as there are buildable sites out of floodway).

6b) Snohomish County Rural Cluster (1/2.3 ac): **For any property in this zoning, we will use a value of \$65,000 per developable lot.**

7) Industrial Forest Zone (1/80 ac)

- Han indicated that Industrial Forest zoned land, generally in large tracts, typically sells from \$500 to \$1,000 per acre exclusive of timber value. Brenda noted that proximity to Secondary Forest zoning might boost the value of land under this zoning, since it would likely be easier to get a zoning change to allow residential use if adjacent to a higher zoned parcel. Therefore, **we will use \$750/ac for land value of property zoned Industrial Forest if NOT adjacent to Secondary Forest zoning, and \$1,000/ac for property adjacent to Secondary Forest zoning.**

- 8) *Riparian Floodway*: \$1,200 - \$1,500/ac. SLT shared that an island they had recently appraised came in at \$1,200/ac. **If property falls entirely within the floodway, regardless of zoning, we will use \$1,200/ac for the SWC formula.**

E. Exceptions to above

In cases where it is determined that the above values do not make sense given the peculiarities of a particular parcel or simply where new, more accurate information is desired and available, cost information may also be derived from a fair market appraisal. In such cases, these costs should be discounted by an annual rate of 5% (per input from 2 qualified appraisers) back to the base year of 2003 to allow the cost effectiveness ranking to be comparable to those of the original assessment.

SUPPORTING DOCUMENTATION

Snohomish County Unified Development Code:

30.23.030 Bulk matrix.

The bulk matrix contains standard setback, lot coverage, building height, and lot dimension regulations for zones in unincorporated Snohomish County. Additional setback and lot area requirements and exceptions are found at SCC 30.23.100 - 30.23.260.

Table 30.23.030(1) BULK MATRIX
Lot Dimension (ft) 54

Setback Requirements From: (ft)28, 53

Category	Zone	Max. Bldg. Height (ft) 27	Min. Lot Area 29	Min. Lot Width	Min. Corner Lot Width	Public Right of Way under 60' 34, 42	Public and Private Right of Way 9, 11, 34, 42	Commerci al and Industrial Zones 11	Residential , Multifamil y, and Rural Zones 11	Resource Ag 20	Lands Forest 21	Water Bodies 12	Max. Lot Coverage 8
Rural	F (38)	45 (6)	20	300	300	130 (10,13)	100	100 (13)	100 (13, 33) 50	100 25	35%		
Rural	RD (38 45)	45	200000	165	165	50 (10)	20	5	5 (33)	50	100	25	35%
Urban	HI	65	None	None	None	25 (25)	25 (26)	None	50	None	100	None	None

Snohomish County Unified Development Code:

Notes on specific zoning areas from County Code:

Rural Diversification (RD): The intent and function of the rural diversification zone is to provide for the orderly use and development of the most isolated, outlying rural areas of the county and at the same time allow sufficient flexibility so that traditional rural land uses and activities can continue. These areas characteristically have only rudimentary public services and facilities, steep slopes and other natural conditions, which discourage intense development, and a resident population, which forms an extremely rural and undeveloped environment. The resident population of these areas is small and highly dispersed. The zone is intended to protect, maintain, and encourage traditional and appropriate rural land uses, particularly those which allow residents to earn a satisfactory living on their own land. The following guidelines apply:

- (i) a minimum of restrictions shall be placed on traditional and appropriate rural land uses;
- (ii) the rural character of these outlying areas will be protected by carefully regulating the size, location, design, and timing of large-scale, intensive land use development; and
- (iii) large residential lots shall be required with the intent of preserving a desirable rural lifestyle as well as preventing intensive urban- and suburban-density development, while also protecting the quality of ground and surface water supplies and other natural resources;

Forest Lands: (1). The purpose of this chapter is to regulate development on and adjacent to designated forest lands in order to conserve forest resources and ensure compatibility between forest lands and adjacent uses. An additional purpose of this chapter is to help assure that the use of lands adjacent to designated forest land does not interfere with the continued use, in the accustomed manner, of the designated forest land for the production of timber and other forest products, as required by the state Growth Management Act (chapter 36.70A RCW). This chapter establishes that forest management activities conducted in compliance with current Washington forest practice rules and regulations (Title 222 WAC) on designated forest lands are accepted activities which should be protected from nuisance complaints and lawsuits. A further purpose is to encourage a good neighbor relationship between forest landowners and residential and other landowners. The chapter promotes greater awareness of forest management activities through notification and disclosure requirements. (2) The provisions of this chapter shall apply to: (a) All subdivisions, short subdivisions, building permits, or any other development permits on designated forest land; and (b) The sale or transfer of real property designated forest land or land adjacent to or within 300 feet of designated forest land.

30.65.220 Floodways: permitted uses.

The following uses are allowed in the floodway when permitted by the applicable zone in accordance with chapter 30.22 SCC, provided the use is in compliance with the applicable general and specific floodproofing standards of SCC 30.65.110 and 30.65.120, and other

applicable provisions of this chapter and will have a negligible effect upon the floodway in accordance with the floodway encroachment provisions of SCC 30.65.230(1):

- (1) Agriculture;
- (2) Forestry, including processing of forest products with portable equipment;
- (3) Preserves and reservations;
- (4) Park and recreational activities;
- (5) Removal of rock, sand and gravel, when the applicant can provide clear and convincing evidence that such uses will not divert flood flows causing channel shift or erosion, accelerate or amplify the flooding of downstream flood hazard areas, increase the flooding threat to upstream flood hazard areas, or in any other way threaten public or private properties. When allowed, such removal shall comply with the provisions of chapter 30.31D SCC and the county shoreline management master program;
- (6) Utility transmission lines when allowed in underlying zones unless otherwise prohibited by this chapter. When the primary purpose of such a transmission line is to transfer bulk products or energy through a floodway en route to another destination, as opposed to serving customers within a floodway, such transmission lines shall conform to the following:

- (a) All utility transmission lines shall cross floodways by the most direct route feasible as opposed to paralleling floodways;

- (b) Electric transmission lines shall span the floodway with support towers located in flood fringe areas or beyond. Where floodway areas cannot be spanned due to excessive width, support towers shall be located to avoid high flood water velocity and/or depth areas, and shall be adequately floodproofed;

- (c) Buried utility transmission lines transporting hazardous materials, including but not limited to crude and refined petroleum products and natural gas, shall be buried a minimum of four feet below the maximum established scour of the waterway, as calculated on the basis of hydrologic analyses. Such burial depth shall be maintained horizontally within the hydraulic floodway to the maximum extent of potential channel migration as determined by hydrologic analyses. In the event potential channel migration extends beyond the hydraulic floodway, conditions imposed upon floodway fringe and special flood hazard areas shall also govern placement. All hydrologic analyses are subject to acceptance by the county, shall assume the conditions of a 100-year frequency flood as verified by the U.S. Army Corps of Engineers, and shall include on-site investigations and consideration of historical meander characteristics in addition to other pertinent facts and data. The use of riprap as a meander containment mechanism within the hydraulic floodway shall be consistent with the Snohomish County shoreline management master program;

- (d) Buried utility transmission lines transporting non-hazardous materials including water and sewage shall be buried a minimum of four feet below the maximum established scour of the waterway as calculated on the basis of hydrologic analyses. Such burial depth shall be maintained horizontally within the hydraulic floodway to the maximum extent of potential channel migration as determined by hydrologic analyses. All hydrologic analyses shall conform to requirements in SCC 30.65.220(6)(c). The use of riprap as a meander containment mechanism within the hydraulic floodway shall be consistent with the county shoreline management master program;

- (e) Beyond the maximum extent of potential channel migration, utility transmission lines transporting hazardous and non-hazardous materials shall be buried below existing natural and artificial drainage features. Burial depth in all agricultural areas requiring or potentially requiring subsurface drainage shall be a minimum of six feet as measured from ground surface to the top of the transmission line, or at other such depth as deemed necessary by on-site investigations performed by a qualified soils expert familiar with county soils.

Burial depth in all other agricultural and non-agricultural floodway areas shall be determined on the basis of accepted engineering practice and in consideration of soil conditions and the need to avoid conflict with agricultural tillage;

(f) All buried utility transmission lines shall achieve sufficient negative buoyancy so that any potential for flotation or upward migration is eliminated;

(g) Above ground utility transmission lines, not including electric transmission lines, shall only be allowed for the transportation of non-hazardous materials where an existing or new bridge or other structure is available and capable of supporting the line. When located on existing or new bridges or other structures with elevations below the level of the 100-year flood, the transmission line shall be placed on the down-stream side and protected from flood debris. In such instances, site specific conditions and flood damage potential shall dictate placement, design and protection throughout the floodway. Applicants must demonstrate that such above ground lines will have no appreciable effect upon flood depth, velocity or passage, and shall be adequately protected from flood damage. If the transmission line is to be buried except at the waterway crossing, burial specifications shall be determined as in SCC 30.65.220(6)(d).

(h) All floodway crossings by utility transmission lines transporting hazardous materials shall be equipped with valves capable of blocking flow within the pipeline in the event of leakage or rupture. All floodway crossings shall have valves unless otherwise indicated by standard engineering review of the site and type of transmission line as acceptable to the county with locations determined by other provisions of this chapter;

(i) Above ground utility transmission line appurtenant structures including valves, pumping stations, or other control facilities shall not be permitted in the floodway; and

(j) Where a floodway has not been determined by preliminary Corps of Engineers' investigations or official designation, a floodway shall be defined by qualified engineering work by the applicant on the basis of a verified 100-year flood event;

(7) Repairs, reconstruction, replacement, or improvements to existing farmhouse structures which are located on lands designated as agricultural lands of long-term commercial significance under RCW 36.70A.170, subject to the following:

(a) The new farmhouse is a replacement for an existing farmhouse on the same farm site;

(b) There is no potential building site for a replacement farmhouse on the same farm outside the designated floodway; SCC Title 30 Page 565

(c) The farmhouse being replaced shall be removed, in its entirety, including foundation, from the floodway within 90 days after occupancy of the new farmhouse;

(d) For substantial improvements, and replacement farmhouses, the elevation of the lowest floor of the improvement and farmhouse respectively, including basement, is one foot higher than the base flood elevation;

(e) New and replacement water supply systems, are designed to eliminate or minimize infiltration of flood waters into the system;

(f) New and replacement sanitary sewerage systems are designed and located to eliminate or minimize infiltration of flood waters into the system and discharge from the system into the flood waters;

(g) All other utilities and connections to public utilities are designed, constructed, and located to eliminate or minimize flood damage;

(h) The replacement farmhouse shall not exceed the total square footage of encroachment of the structure which it is replacing.

(8) Replacement of single family dwellings, other than farmhouse replacement pursuant to SCC 30.65.220(7), when the flood depth, flood velocity, and flood-related erosion of the site

is evaluated in order to identify a building location that offers the least risk of harm to life and property. A suitable building location for a replacement structure shall be approved for structures damaged by flooding or flood-related erosion only when the following are met:

(a) The State Department of Ecology, pursuant to RCW 86.16.041(4) and (5), assesses the risk of harm to life and property posed by the specific conditions of the floodway at any proposed building site, and based upon scientific analysis of depth, velocity, and flood-related erosion recommends to the county that a waiver to the floodway prohibition of RCW 86.16.041(2)(a) for repair, replacement or relocation of such structures is authorized for a specific building location.

(b) Repair, replacement or relocation of such structures is permitted only when authorization required pursuant to 30.65.220(8)(a) is given in writing by the state department of ecology pursuant to RCW 86.16.041(4) and (5).

(9) Repair, reconstruction, or improvement of residential structures, where repair, reconstruction, or improvement of a structure does not increase the ground floor area, and is not a substantial improvement.

(10) Water-dependent utilities and other installations which by their very nature must be in the floodway. Examples of such uses are: Dams for domestic/industrial water supply, flood control and/or hydroelectric production; water diversion structures and facilities for water supply, irrigation and/or fisheries enhancement; flood water and drainage pumping plants and facilities; hydroelectric generating facilities and appurtenant structures; structural and nonstructural flood damage reduction facilities, and stream bank stabilization structures and practices. The applicant shall supply convincing evidence that a floodway location is necessary in view of the objectives of the proposal and that the proposal is consistent with other provisions of this chapter and the shoreline management master program. In all instances of locating utilities and other installations in floodway locations, project design must incorporate floodproofing.

(11) Dikes, when the applicant can provide clear and convincing evidence that:

(a) Adverse effects upon adjacent properties will not result relative to increased floodwater depths and velocities during the base flood or other more frequent flood occurrences;

(b) Natural drainage ways are minimally affected in that their ability to adequately drain floodwaters after a flooding event is not impaired; and

(c) The proposal has been coordinated through the appropriate diking district where applicable, and that potential adverse effects upon other affected diking districts have been documented.

(12) Public works, limited to roads and bridges. (Added Amended Ord. 02-064, December 9, 2002, Eff date February 1, 2003)

30.65.230 Floodways: prohibited uses.

(1) The following uses/development are prohibited in the floodway: (a) Any structure, including mobile homes designed for, or to be used for, human habitation of a permanent nature (including temporary dwellings authorized by SCC 30.22.130 except as provided by SCC 30.65.220(7), (8), and (9)). (b) All encroachments, including fill, new construction, and other development unless verification by a registered professional engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the effect of the subject encroachment together with the cumulative effects of all similar potential encroachments shall not materially cause water to be diverted from the established floodway, cause erosion, obstruct the natural flow of water,

reduce the carrying capacity of the floodway, or result in any increase in flood levels during the occurrence of the base flood discharge. (c) The construction or storage of any object subject to flotation or movement during flood level periods; (d) The following uses, due to their high degree of incompatibility with the purpose of establishing and maintaining a functional floodway are specifically prohibited: (i) the filling of marshlands, (ii) solid waste landfills, dumps, junkyards, outdoor storage of vehicles and/or materials, (iii) damming or relocation of any watercourse that will result in any downstream increase in flood levels during the occurrence of the base flood discharge; and (iv) critical facilities as defined in this title. (2) The listing of prohibited uses in this section shall not be construed to alter the general rule of statutory construction that any use not permitted is prohibited. (Added Amended Ord. 02-064, December 9, 2002, Eff date February 1, 2003; Amended Ord. 07-005, February, 21, 2007, Eff date March 4, 2007)

Appendix D

METHODS

The following methods and assumptions were used in applying the Skagit Watershed Council's ranking formula for this assessment.

Floodplain boundary:

A floodplain boundary was adjusted for this analysis based on a geomorphic interpretation from the 2005 LiDAR hillshade and DEM at a 1:6,000 scale to correct obvious errors in existing delineations that placed the boundary in the current active channel or in the middle of a surface of the same elevation. This was used for the purpose of delineating properties of interest for habitat protection that would otherwise have been inadvertently missed from the existing floodplain map. Small measurement errors can be attributed to the scale at which the floodplain layer was adjusted. The floodplain as delineated for this project does not purport to replace flood hazard maps. County zoning and FEMA floodway mapping, however, were used to assign property valuations in this assessment.

Both the active channel and floodplain boundaries were challenging to delineate with remote sensing on the east bank of the Sauk River below Darrington (in reach SA050) where the floodplain is widest. Hence, habitat benefit and non-channel floodplain benefit estimates necessarily contain uncertainties potentially significant to the final assessment ranking.

Active river channel:

Because the Sauk River has eroded a number of parcels in the assessment area, the Protection Committee agreed not to assign property value to those portions of parcels that fall within the active channel. A data layer was created that defines the active channel as the area in wetted channel and exposed gravel bars and banks visible from 2007 digital aerial photographs available from Skagit and Snohomish Counties and delineated at a 1:6,000 scale. The area of each parcel within the active channel was calculated and added to the total of each parcel but not assigned a value where the valuation methods used a per acre cost.

Habitat Benefit: mainstem channel:

Similar to the previous assessments, habitat associated with the mainstem Sauk and Suiattle Rivers was considered as "key" habitat. Existing habitat was based primarily on an analysis of 2007 color digital aerial photography (2006 in the upper Suiattle River reach) and available stream mapping (Appendix D). Mainstem habitat associated with a parcel was measured as ½ the width of the active channel perpendicular to the channel. Where the active channel bars are

much wider than the wetted channel in the photographs (usually at river bends), channel width was measured to the nearest line of vegetation. Examples are parcels P18649 and P18650. Where parcel boundaries extend into the active channel, main channel habitat benefit included the portion of the parcel in the active channel plus $\frac{1}{2}$ the width of the active channel between the opposite bank or another parcel boundary, whichever is closest. The habitat benefit per parcel was delineated at a 1:3,500 scale.

Habitat Benefit: mainstem side channels

Mainstem side channels were identified as wetted channels visible in the aerial photographs or, with the aid of LiDAR dem and hillshade, as channels at approximately the same elevation as the active channel. Floodplain channel features at approximately the same elevation as the vegetated floodplain but connected to tributary flow were assigned side channel habitat benefit. Floodplain channel features identified in the LiDAR hillshade but at approximately the same elevation as the floodplain surface and with no visible water in the channel were assumed to be part of the non-channel floodplain surface.

Habitat Benefit: tributaries

Floodplain tributaries were identified visually and confirmed from maps and available stream mapping. An estimated width was given to measured length to assign an area of habitat benefit. Floodplain tributaries were considered as either key habitat if riparian conditions were undisturbed or important if limited or no riparian canopy. Small, unnamed tributaries outside of the floodplain with limited upslope drainage were not included as a habitat benefit as location, habitat type, and width could not be determined.

Floodplain Condition:

Aerial photography from 2006 (Suitttle) and 2007 (Sauk) and projected at scale of 1:3,500 were used to interpret non-channel floodplain condition of assessment parcels in three categories consistent with the SWC ranking formula (Appendix B): functioning, moderately impaired, and impaired.

Areas identified as functioning were interpreted from aerial photography to be areas of a parcel within the floodplain where natural systems have not been significantly altered, such as in undisturbed forested or naturally disturbed riverine conditions. Areas deemed moderately impaired were parcels within the floodplain that have been partially cleared or disturbed. Impaired parcels within the floodplain are those areas that have been totally cleared or significantly changed, such as by agriculture, home sites, or infrastructure. Floodplain categorized as isolated are those where there was low parcel connectivity. The portions of parcels classified as upland are those above the floodplain.

Valuations:

Parcel valuations were assigned based on the attached April 17, 2009 memo to the Protection Committee adopted on April 28, 2009. Where parcel zoning differed between assessor records and the Skagit County Comprehensive Plan zone mapping available for GIS, the comp plan zoning was used. Additional conditions were adopted or assumed during the course of the evaluation as follows:

- Portions of parcels within the current active channel were calculated but assigned no value, per agreement of the Protection Committee.
- Two or more lots in a single ownership and zoning category were assigned a value commensurate with the total acreage.
- Based on a 9/2/09 consultation with Martha Bray with the Skagit Land Trust, where large lots included a small portion in the floodplain that could be potentially segregated from the upland portion and this would create a sub-standard lot, a per acre value is applied rather than a per lot value (example P31072). We used \$4,000/ac consistent with the valuation memo for the Rural Reserve Zoning >20 ac. Rationale for this call is that under Skagit County interpretation, any new sub-standard lot that could be created would not be developable.
- Sub-standard recreational lots of 5+ acres in Industrial Forest zoning adjacent to the Suiattle River were assigned the same \$4,000/ac value assuming the lots would not be permitted for residential development. Sub-standard lots in Snohomish County Rural-Forest Lands designation were assigned the same value per acre also assuming the lots would not be permitted for residential development.
- Sub-standard lots were found in all zoning categories.
- One parcel (32092500200100) in Snohomish County is in “Heavy Industry” zoning; a category not covered in the updated valuation memo. Since this is a large lot (>30 ac) adjacent to both the city of Darrington and forestry zoning, it was assigned Rural-Forest Lands valuation.
- Initially, lots within the city limits of Darrington were not to be included in this assessment. However, a request by the sponsor of a recent SRFB grant to evaluate properties within the city limits adjacent to another acquisition indicated the need to include parcels on the order of 5 acres or larger and those smaller parcels within strategic locations on the floodplain. According to a recent appraisal for lots in this area, when the town of Darrington annexed a portion of these river front lots, 2 tax parcels were created and these assessor tax parcels are not legal lots (Figure D.1). For the purpose of this assessment, these lots are assumed to be one parcel where held by a single owner and assigned RD or RVR value estimates depending on the size. Likewise, floodplain parcels < 5 ac in RD zoning close to the town of Darrington

were also assigned lot values based on Skagit RVR zoning (rural village residential 1/1-2.5 ac). The valuation of one lot entirely within the city and targeted for acquisition by a SRFB grant was based on the appraisal for that grant (Item E in the valuation memo), as it is unique in the assessment and the valuation memo doesn't address the zoning.

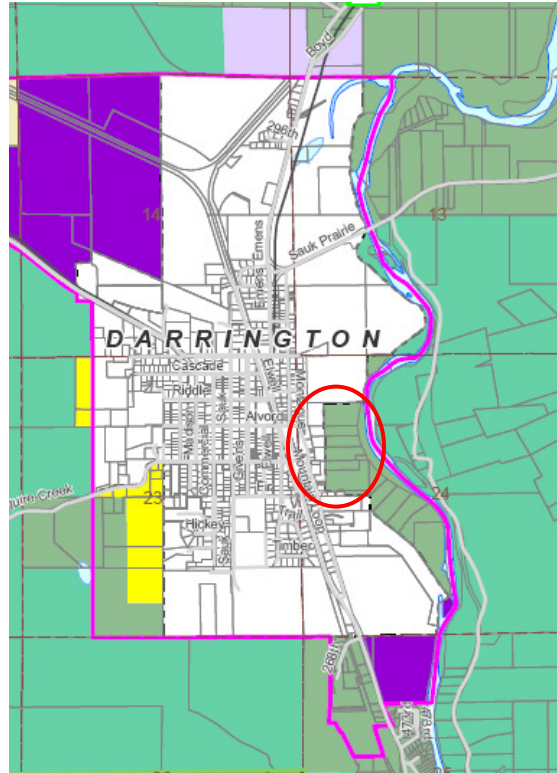


Figure D.1. Portion of Quadrangle 9 Snohomish County Zoning Map, September 15, 2009. White area is Darrington city boundary; heavy pink line is UGA boundary. Area within the red circle are those lots divided by the city-county boundary.