

**OBSERVATION INFO**

Observer Name: \_\_\_\_\_

Observation Date: \_\_\_\_\_

Reach ID: \_\_\_\_\_

Stream Name: \_\_\_\_\_

**LOCATION OF ASSESSMENT REACH**

GPS UTM Easting: \_\_\_\_\_

**LENGTH OF REACH**

GPS UTM Northing: \_\_\_\_\_

Length \_\_\_\_\_ meters OR \_\_\_\_\_ x bankfull widths

**VEGETATION CAPACITY TO SUPPORT DAM BUILDING ACTIVITY****SUITABILITY OF STREAMSIDE VEGETATION**

- ☐ Unsuitable
- ☐ Barely Suitable
- ☐ Moderately Suitable
- ☐ Suitable
- ☐ Preferred

*Vegetation within 30 m of water's edge*

What vegetation types are abundant?

- ☐ Desirable woody (e.g. Aspen, Willow, Cottonwood)
- ☐ Other woody (e.g. conifers, sagebrush)
- ☐ Grasses ☐ Crops ☐ Ornamentals ☐ Developed

**SUITABILITY OF RIPARIAN/UPLAND VEGETATION**

- ☐ Unsuitable
- ☐ Barely Suitable
- ☐ Moderately Suitable
- ☐ Suitable
- ☐ Preferred

*Vegetation within 100 m of water's edge*

What vegetation types are abundant?

- ☐ Desirable woody (e.g. Aspen, Willow, Cottonwood)
- ☐ Other woody (e.g. conifers, sagebrush)
- ☐ Grasses ☐ Crops ☐ Ornamentals ☐ Developed

**DAM DENSITY CAPACITY ASSESSMENT BASED ON SUITABILITY OF VEGETATION ONLY (USE TABLE 1)**

- ☐ None (no dams)
- ☐ Rare (0-1 dams/km)
- ☐ Occasional (1-4 dams/km)
- ☐ Frequent (5-15 dams/km)
- ☐ Pervasive (15-40 dams/km)

**COMBINED CAPACITY TO SUPPORT DAM BUILDING ACTIVITY****CAN BEAVER BUILD A DAM AT BASE FLOWS?**

- ☐ Probably can build dam
- ☐ Can build dam
- ☐ Can build dam (saw evidence of recent dams)
- ☐ Could build dam at one time (saw evidence of relic dams)
- ☐ Cannot build dam (stream power really high)

**IF BEAVERS BUILD A DAM, CONSIDER WHAT HAPPENS TO THE DAM(S) IN A TYPICAL FLOOD (E.G. MEAN ANNUAL FLOOD)?**

- ☐ Blowout
- ☐ Occasional Blowout
- ☐ Occasional Breach
- ☐ Dam Persists

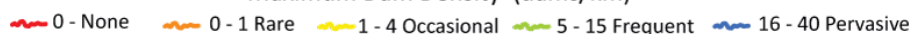
**HOW DOES THE REACH SLOPE IMPACT THEIR ABILITY OR NEED TO BUILD DAMS?**

- ☐ Too steep they cannot build a dam (e.g. > 20% slope)
- ☐ Probably can build dam
- ☐ Can build dam (inferred)
- ☐ Can build dam (evidence or current or past dams)
- ☐ Really flat (can build dam, but might not need as many as one dam might back up water > 0.5 km)

**COMBINED DAM DENSITY CAPACITY ASSESSMENT BASED ON ALL (USE TABLE 2)**

- ☐ None (no dams)
- ☐ Rare (0-1 dams/km)
- ☐ Occasional (1-4 dams/km)
- ☐ Frequent (5-15 dams/km)
- ☐ Pervasive (15-40 dams/km)

Maximum Dam Density (dams/km)



## INFERENCE SYSTEM OF CAPACITY BASED ON VEGETATION ONLY:

**Table 1.** Rule table for two input inference system that models the capacity of the reach to support dam building activity (in dam density) using the suitability of streamside vegetation and suitability of riparian/upland vegetation as inputs.

Rules	Inputs			Output
	Suitability of streamside vegetation	& Suitability of riparian/upland vegetation		
1 <i>If</i>	Unsuitable	& Unsuitable	, <i>then</i>	None
2 <i>If</i>	Unsuitable	& Barely suitable	, <i>then</i>	Rare
3 <i>If</i>	Unsuitable	& Moderately suitable	, <i>then</i>	Rare
4 <i>If</i>	Unsuitable	& Suitable	, <i>then</i>	Occasional
5 <i>If</i>	Unsuitable	& Preferred	, <i>then</i>	Occasional
6 <i>If</i>	Barely suitable	& Unsuitable	, <i>then</i>	Rare
7 <i>If</i>	Barely suitable	& Barely suitable	, <i>then</i>	Rare
8 <i>If</i>	Barely suitable	& Moderately suitable	, <i>then</i>	Occasional
9 <i>If</i>	Barely suitable	& Suitable	, <i>then</i>	Occasional
10 <i>If</i>	Barely suitable	& Preferred	, <i>then</i>	Occasional
11 <i>If</i>	Moderately suitable	& Unsuitable	, <i>then</i>	Rare
12 <i>If</i>	Moderately suitable	& Barely suitable	, <i>then</i>	Occasional
13 <i>If</i>	Moderately suitable	& Moderately suitable	, <i>then</i>	Occasional
14 <i>If</i>	Moderately suitable	& Suitable	, <i>then</i>	Frequent
15 <i>If</i>	Moderately suitable	& Preferred	, <i>then</i>	Frequent
16 <i>If</i>	Suitable	& Unsuitable	, <i>then</i>	Occasional
17 <i>If</i>	Suitable	& Barely suitable	, <i>then</i>	Occasional
18 <i>If</i>	Suitable	& Moderately suitable	, <i>then</i>	Frequent
19 <i>If</i>	Suitable	& Suitable	, <i>then</i>	Frequent
20 <i>If</i>	Suitable	& Preferred	, <i>then</i>	Pervasive
21 <i>If</i>	Preferred	& Unsuitable	, <i>then</i>	Occasional
22 <i>If</i>	Preferred	& Barely suitable	, <i>then</i>	Frequent
23 <i>If</i>	Preferred	& Moderately suitable	, <i>then</i>	Pervasive
24 <i>If</i>	Preferred	& Suitable	, <i>then</i>	Pervasive
25 <i>If</i>	Preferred	& Preferred	, <i>then</i>	Pervasive

# COMBINED INFERENCE SYSTEM:

**Table 2.** Rule table for four input inference system that models the capacity of the reach to support dam building activity (in dam density) using the vegetation dam density capacity (output of Table 1 model), the two-year flood stream power, baseflow stream power and reach slope.

Rules	Inputs				Output	
	Vegetation dam density capacity	& 2-year flood stream power	& Baseflow stream power	& Reach slope		Dam density capacity
1 <i>If</i> None	& -	& -	& -	& -	, then	None
2 <i>If</i> -	& -	& Cannot build dam	& -	& -	, then	None
3 <i>If</i> -	& -	& -	& -	& Cannot build dam	, then	None
4 <i>If</i> Rare	& Dam persists	& Can build dam	& NOT Can build dam	& NOT Can build dam	, then	Rare
5 <i>If</i> Rare	& Dam persists	& Probably can build dam	& NOT Can build dam	& NOT Can build dam	, then	Rare
6 <i>If</i> Rare	& Occasional breach	& Can build dam	& NOT Can build dam	& NOT Can build dam	, then	Rare
7 <i>If</i> Rare	& Occasional breach	& Probably can build dam	& NOT Can build dam	& NOT Can build dam	, then	Rare
8 <i>If</i> Rare	& Occasional blowout	& Can build dam	& NOT Can build dam	& NOT Can build dam	, then	Rare
9 <i>If</i> Rare	& Occasional blowout	& Probably can build dam	& NOT Can build dam	& NOT Can build dam	, then	Rare
10 <i>If</i> Rare	& Blowout	& Can build dam	& NOT Can build dam	& NOT Can build dam	, then	None
11 <i>If</i> Rare	& Blowout	& Probably can build dam	& NOT Can build dam	& NOT Can build dam	, then	None
12 <i>If</i> Occasional	& Dam persists	& Can build dam	& NOT Can build dam	& NOT Can build dam	, then	Occasional
13 <i>If</i> Occasional	& Dam persists	& Probably can build dam	& NOT Can build dam	& NOT Can build dam	, then	Occasional
14 <i>If</i> Occasional	& Occasional breach	& Can build dam	& NOT Can build dam	& NOT Can build dam	, then	Occasional
15 <i>If</i> Occasional	& Occasional breach	& Probably can build dam	& NOT Can build dam	& NOT Can build dam	, then	Occasional
16 <i>If</i> Occasional	& Occasional blowout	& Can build dam	& NOT Can build dam	& NOT Can build dam	, then	Occasional
17 <i>If</i> Occasional	& Occasional blowout	& Probably can build dam	& NOT Can build dam	& NOT Can build dam	, then	Occasional
18 <i>If</i> Occasional	& Blowout	& Can build dam	& NOT Can build dam	& NOT Can build dam	, then	Rare
19 <i>If</i> Occasional	& Blowout	& Probably can build dam	& NOT Can build dam	& NOT Can build dam	, then	Rare
20 <i>If</i> Frequent	& Dam persists	& Can build dam	& Really flat	& Really flat	, then	Occasional
21 <i>If</i> Frequent	& Dam persists	& Can build dam	& Can build dam	& Can build dam	, then	Frequent
22 <i>If</i> Frequent	& Dam persists	& Can build dam	& Probably can build dam	& Probably can build dam	, then	Occasional
23 <i>If</i> Frequent	& Dam persists	& Probably can build dam	& Really flat	& Really flat	, then	Occasional
24 <i>If</i> Frequent	& Dam persists	& Probably can build dam	& Can build dam	& Can build dam	, then	Frequent
25 <i>If</i> Frequent	& Dam persists	& Probably can build dam	& Probably can build dam	& Probably can build dam	, then	Occasional
26 <i>If</i> Frequent	& Occasional breach	& Can build dam	& Really flat	& Really flat	, then	Occasional
27 <i>If</i> Frequent	& Occasional breach	& Can build dam	& Can build dam	& Can build dam	, then	Frequent
28 <i>If</i> Frequent	& Occasional breach	& Can build dam	& Probably can build dam	& Probably can build dam	, then	Occasional
29 <i>If</i> Frequent	& Occasional breach	& Probably can build dam	& Really flat	& Really flat	, then	Occasional
30 <i>If</i> Frequent	& Occasional breach	& Probably can build dam	& Can build dam	& Can build dam	, then	Frequent
31 <i>If</i> Frequent	& Occasional breach	& Probably can build dam	& Probably can build dam	& Probably can build dam	, then	Occasional
32 <i>If</i> Frequent	& Occasional blowout	& Can build dam	& Really flat	& Really flat	, then	Occasional
33 <i>If</i> Frequent	& Occasional blowout	& Can build dam	& Can build dam	& Can build dam	, then	Frequent
34 <i>If</i> Frequent	& Occasional blowout	& Can build dam	& Probably can build dam	& Probably can build dam	, then	Occasional
35 <i>If</i> Frequent	& Occasional blowout	& Probably can build dam	& Really flat	& Really flat	, then	Rare
36 <i>If</i> Frequent	& Occasional blowout	& Probably can build dam	& Can build dam	& Can build dam	, then	Occasional
37 <i>If</i> Frequent	& Occasional blowout	& Probably can build dam	& Probably can build dam	& Probably can build dam	, then	Rare
38 <i>If</i> Frequent	& Blowout	& Can build dam	& Really flat	& Really flat	, then	Rare
39 <i>If</i> Frequent	& Blowout	& Can build dam	& Can build dam	& Can build dam	, then	Rare
40 <i>If</i> Frequent	& Blowout	& Can build dam	& Probably can build dam	& Probably can build dam	, then	Rare
41 <i>If</i> Frequent	& Blowout	& Probably can build dam	& Really flat	& Really flat	, then	Rare
42 <i>If</i> Frequent	& Blowout	& Probably can build dam	& Can build dam	& Can build dam	, then	Rare
43 <i>If</i> Frequent	& Blowout	& Probably can build dam	& Probably can build dam	& Probably can build dam	, then	Rare
44 <i>If</i> Pervasive	& Dam persists	& Can build dam	& Really flat	& Really flat	, then	Frequent
45 <i>If</i> Pervasive	& Dam persists	& Can build dam	& Can build dam	& Can build dam	, then	Pervasive
46 <i>If</i> Pervasive	& Dam persists	& Can build dam	& Probably can build dam	& Probably can build dam	, then	Frequent
47 <i>If</i> Pervasive	& Dam persists	& Probably can build dam	& Really flat	& Really flat	, then	Frequent
48 <i>If</i> Pervasive	& Dam persists	& Probably can build dam	& Can build dam	& Can build dam	, then	Pervasive
49 <i>If</i> Pervasive	& Dam persists	& Probably can build dam	& Probably can build dam	& Probably can build dam	, then	Frequent
50 <i>If</i> Pervasive	& Occasional breach	& Can build dam	& Really flat	& Really flat	, then	Frequent
51 <i>If</i> Pervasive	& Occasional breach	& Can build dam	& Can build dam	& Can build dam	, then	Pervasive
52 <i>If</i> Pervasive	& Occasional breach	& Can build dam	& Probably can build dam	& Probably can build dam	, then	Frequent
53 <i>If</i> Pervasive	& Occasional breach	& Probably can build dam	& Really flat	& Really flat	, then	Frequent
54 <i>If</i> Pervasive	& Occasional breach	& Probably can build dam	& Can build dam	& Can build dam	, then	Pervasive
55 <i>If</i> Pervasive	& Occasional breach	& Probably can build dam	& Probably can build dam	& Probably can build dam	, then	Frequent
56 <i>If</i> Pervasive	& Occasional blowout	& Can build dam	& Really flat	& Really flat	, then	Frequent
57 <i>If</i> Pervasive	& Occasional blowout	& Can build dam	& Can build dam	& Can build dam	, then	Pervasive
58 <i>If</i> Pervasive	& Occasional blowout	& Can build dam	& Probably can build dam	& Probably can build dam	, then	Frequent
59 <i>If</i> Pervasive	& Occasional blowout	& Probably can build dam	& Really flat	& Really flat	, then	Occasional
60 <i>If</i> Pervasive	& Occasional blowout	& Probably can build dam	& Can build dam	& Can build dam	, then	Frequent
61 <i>If</i> Pervasive	& Occasional blowout	& Probably can build dam	& Probably can build dam	& Probably can build dam	, then	Occasional
62 <i>If</i> Pervasive	& Blowout	& Can build dam	& Really flat	& Really flat	, then	Occasional
63 <i>If</i> Pervasive	& Blowout	& Can build dam	& Can build dam	& Can build dam	, then	Occasional
64 <i>If</i> Pervasive	& Blowout	& Can build dam	& Probably can build dam	& Probably can build dam	, then	Rare
65 <i>If</i> Pervasive	& Blowout	& Probably can build dam	& Really flat	& Really flat	, then	Occasional
66 <i>If</i> Pervasive	& Blowout	& Probably can build dam	& Can build dam	& Can build dam	, then	Occasional
67 <i>If</i> Pervasive	& Blowout	& Probably can build dam	& Probably can build dam	& Probably can build dam	, then	Rare