OpenBeaverNetwork and Beaver Habitat Index

Data summary report (South West)

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R Markdown

Table 1: provides definitions for the BHI values. A value of five represents vegetation that is highly suitable or preferred by beavers and that also lies within 100 m of a waterbody. Zero scores are given to areas that contain no vegetation or are greater than 100 m from a waterbody. It is important to note that the model considers terrestrial habitat, where foraging primarily occurs, and therefore watercourses themselves are also scored zero. center

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Variable Name	Variable Full Name	Description
BDC_TOT	Total Beaver Dam Capacity (n dams)	The Beaver dam Capacity of the region (n dams). For areas larger than a single beaver territory, it would not be expected to see a system at (or even close to) dam capacity. For estimating dam numbers at or greater than the catchment scale use "Est_nDam".
BDC_MEAN	Average Beaver Dam Capacity (dams/km), weighted by reach length	The average Beaver Dam Capacity across the region. Reach length is used as a weighting as reach lengths vary.
BDC_STD	Beaver Dam Capacity standard deviation (dams/km), weighted by reach length.	The standard deviation of Beaver Dam Capacity within the region. Provides an understanding of BDC variability. Weighted by reach length.
BDC_P_NONE	Proportion of river network in "None" BDC category (%)	The percentage of the river network, within the area of interest, which has no capacity to support dams.
BDC_P_RARE	Proportion of river network in "Rare" BDC category (%)	The percentage of the river network, within the area of interest, which has the capacity to support 0-1 dams/km.

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Variable Name	Variable Full Name	Description
BDC_P_OCC	Proportion of river network in "Occasional" BDC category (%)	The percentage of the river network, within the area of interest, which has the capacity to support 1-4 dams/km.
BDC_P_FREQ	Proportion of river network in "Frequent" BDC category (%)	The percentage of the river network, within the area of interest, which has the capacity to support 4-15 dams/km.
BDC_P_PERV	Proportion of river network in "Pervasive" BDC category (%)	The percentage of the river network, within the area of interest, which has the capacity to support 15-30 dams/km.
BDCkm_NONE	Length of river network in "None" BDC category (km)	The length of the river network, within the area of interest, which has no capacity to support dams.
BDCkm_RARE	Length of river network in "Rare" BDC category (km)	The length of the river network, within the area of interest, which has the capacity to support 0-1 dams/km.
BDCkm_OCC	Length of river network in "Occasional" BDC category (km)	The length of the river network, within the area of interest, which has the capacity to support 1-4 dams/km.
BDCkm_FREQ	Length of river network in "Frequent" BDC category (km)	The length of the river network, within the area of interest, which has the capacity to support 4-15 dams/km.
BDCkm_PERV	Length of river network in "Pervasive" BDC category (km)	The length of the river network, within the area of interest, which has the capacity to support 15-30 dams/km.
BFI40_P_UN	Proportion of river network with "unsuitable" beaver forage (%)	Percentage of river network, within the area of interest, where the mean of the upper 50% of BFI raster cell values, within 40m of the bank, is <= 1.
BFI40_P_LO	Proportion of river network with "low suitability" beaver forage (%)	Percentage of river network, within the area of interest, where the mean of the upper 50% of BFI raster cell values, within 40m of the bank, is 1 > 2.
BFI40_P_MO	Proportion of river network with "moderate suitability" beaver forage (%)	Percentage of river network, within the area of interest, where the mean of the upper 50% of BFI raster cell values, within 40m of the bank, is 2 > 3.
BFI40_P_HI	Proportion of river network with "high suitability" beaver forage (%)	Percentage of river network, within the area of interest, where the mean of the upper 50% of BFI raster cell values, within 40m of the bank, is 3 > 4.
BFI40_P_PR	Proportion of river network with "preferred" beaver forage (%)	Percentage of river network, within the area of interest, where the mean of the upper 50% of BFI raster cell values, within 40m of the bank, is 4 > 5.
BFI40km_UN	Length of river network with "unsuitable" beaver forage (km)	Length of river network, within the area of interest, where the mean of the upper 50% of BFI raster cell values, within 40m of the bank, is <=1.
BFI40km_LO	Length of river network with "low suitability" beaver forage (km)	Length of river network, within the area of interest, where the mean of the upper 50% of BFI raster cell values, within 40m of the bank, is 1 > 2.
BFI40km_MO	Length of river network with "moderate suitability" beaver forage (km)	Length of river network, within the area of interest, where the mean of the upper 50% of BFI raster cell values, within 40m of the bank, is 2 > 3.

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Variable Name	Variable Full Name	Description
BFI40km_HI	Length of river network with "high suitability" beaver forage (km)	Length of river network, within the area of interest, where the mean of the upper 50% of BFI raster cell values, within 40m of the bank, is 3 > 4.
BFI40km_PR	Length of river network with "preferred" beaver forage (km)	Length of river network, within the area of interest, where the mean of the upper 50% of BFI raster cell values, within 40m of the bank, is 4 > 5.
Est_nDam	Estimated Number of dams	The estimated number of dams that may be built, assuming that all reaches within the area of interest contain beaver activity.
Est_nDamLC	Estimated Number of dams (Lower 95% Confidence limit)	The lower 95% confidence limit for estimated number of dams that are likely to be built within the area of interest.
Est_nDamUC	Estimated Number of dams (Upper 95% Confidence limit)	The Upper 95% confidence limit for estimated number of dams that are likely to be built within the area of interest.
Est_DamD	Estimated dam density	The estimated dam density (dams/km) within the area of interest, assuming that all reaches contain beaver activity.
Est_DamDLC	Estimated dam density (Lower 95% Confidence limit)	The lower 95% confidence limit for estimated dam density (dams/km) within the area of interest.
Est_DamDUC	Estimated dam density (Upper 95% Confidence limit)	The Upper 95% confidence limit for estimated dam density (dams/km) within the area of interest.
TOT_km	Total length of river network (km)	Sum of all channel lengths within are of interest.

Variable Name	Variable Full Name	Description
BDC	Beaver Dam Capacity (dams/km)	The maximum dam density that can be supported in a given reach. See (Graham et al., 2020; Macfarlane et al., 2017). Though individual reaches may reach capacity, whole catchments are extremely unlikely to reach capacity. For estimating (sub)catchment scale dam counts use 'Est_nDam'.
BDC_cat	Beaver Dam Capacity Category	A categorical string assigned based on the BDC value: (0 = None, 0-1 = Rare, 1-4 = Occasional, 4-15 = Frequent, 15-30 = Pervasive)
BFI_10m	Beaver Forage Index score within 10m of bank	The mean of the upper 50% of Beaver Forage Index (BFI) values within 10m of the river bank. The Beaver Forage Index describes the suitability of a given vegetation type as beaver forage. Range from 0-5.
BFI_40m	Beaver Forage Index score within 40m of bank	The mean of the upper 50% of Beaver Forage Index (BFI) values within 40m of the river bank. This Metric is preferred over the 10m buffer when considering foraging habitat.
BFI_cat	Beaver Forage Index (Suitability) Category	A categorical value assigned based on BFI_40m to describe the forage preference of beaver for a particular vegetation type /landcover. (0-1 = Unsuitable, 1-2 = Low, 2-3 = Moderate, 3-4=High, 4-5 = Preferred)
V_BDC	Vegetation Beaver Dam Capacity (dams/km)	The maximum density of dams that can be supported in a given reach, considering vegetation only. No hydrologic of geomorphic parameters are used here. This intermediate metric may be useful in some instances to evaluate vegetation but we recommend the use of BDC to evaluate dam capacity and BFI_40m to evaluate forage suitability.)
Dam_Prob	Probability of dam construction (mean)	The probability that a given reach will be dammed by beaver, assuming that beaver are active in the reach (Graham et al., 2020).
Dam_ProbLC	Probability of dam construction (Lower 95% Credible interval)	The lower 95% credible interval for the probability of dam construction, assuming that beaver are active in the reach.

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Variable Name	Variable Full Name	Description
Dam_ProbUC	Probability of dam construction (Upper 95% Credible interval)	The upper 95% credible interval for the probability of dam construction, assuming that beaver are active in the reach.
For_Prob	Probability of Beaver Foraging (mean)	The probability that beaver will forage in a given reach, assuming that beaver are active within the catchment (Graham et al., 2020).
For_ProbLC	Probability of Beaver Foraging (Lower 95% Credible interval)	The lower 95% credible interval for the probability of beaver foraging, assuming that beaver are active within the catchment.
For_ProbUC	Probability of Beaver Foraging (Upper 95% Credible interval)	The upper 95% credible interval for the probability of beaver foraging, assuming that beaver are active within the catchment.
Est_nDam	Estimated Number of dams (mean)	The estimated number of dams in a given reach, if beaver are active within it. This value is to be used to quantify the likely number of dams that may occur at the sub-catchment scale (ca. >= 5 km2) as a minimum (Graham et al., 2020). For estimating the number of dams that may occur in a single reach (or beaver territory), 'BDC' is a more appropriate metric.
Est_nDamLC	Estimated Number of dams (Lower 95% Confidence limit)	The lower 95% confidence limit of dam estimates for a given reach. See 'Est_nDam' description for further info.
Est_nDamUC	Estimated Number of dams (Upper 95% Confidence limit)	The upper 95% confidence limit of dam estimates for a given reach. See 'Est_nDam' description for further info.
Length_m	Reach Length (m)	The length of a given river reach.
Width_m	Reach Width (m)	The mean width of a given river reach.
Slope_perc	Reach slope (%)	The mean slope of a given river reach.
Drain_Area	Contributing Drainage Area (km2)	The flow accumulation area for a given reach: i.e. the total area from which water flows into a reach.
Str_order	Stream Order (Strahler)	The stream order of a given reach, calculated using the Strahler method (Strahler, 1957)
Q2_Flow	Flow at Q2 (m^-3 s^-1)	The estimated flow for a given reach at the Q2 exceedance level (98th percentile)
Q80_Flow	Flow at Q80 (m^-3 s^-1)	The estimated flow for a given reach at the Q80 exceedance level (20th percentile)
Q2_StrPow	Stream Power at Q2 (watts/m)	The Total Stream power for a given reach at the Q2 exceedance level.
Q80_StrPow	Stream Power at Q80 (watts/m)	The Total Stream power for a given reach at the Q80 exceedance level.
reach_no	Unique Reach ID number	Integer to identify individual reaches.