

Table 5.1 Faunal Indicator Species For Scaling V_{ASIGN}

COMMON NAME	GENUS / SPECIES
Black Bear	<i>Ursus americanus</i>
Mountain Lion	<i>Puma concolor</i>
Steelhead Trout	<i>Salmo gairdnerii gairdnerii</i>
Red Legged Frog	<i>Rana aurora draytonii</i>
Arroyo Toad	<i>Bufo microscaphus californicus</i>
California Newt	<i>Taricha torosa</i>

Table 6.b Scaling for High and Medium and Low Gradient Subclasses

MEASUREMENT CONDITION FOR V_{ASIGN}	INDEX
a. ≥ 4 classes of animals or animal signs or ≥ 2 indicator species (animals or animal signs) and	1.00
b. no evidence of human alteration of the PAA within the last 50 years.	
a. ≥ 4 classes of animals or animal signs or ≥ 2 indicator species (animals or animal signs) and	0.75
b. evidence of human alteration of the PAA within the last 50 years.	
a. ≥ 3 classes of animals or animal signs or ≥ 1 indicator species (animals or animal signs) and	0.50
b. evidence of human alteration of the PAA.	
≥ 2 classes of animals or animal signs	0.25
a. < 2 classes of animals or animal signs and	0.10
b. the variable is recoverable and sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied.	
a. < 2 classes of animals and	0.00
b. the variable is not recoverable and not sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied.	

Table 5.3 Scaling for High, Medium, and Low Gradient Subclasses

MEASUREMENT OR CONDITION FOR V_{BUFFCOND}	INDEX
Dominant land use / condition within the buffer is unaltered by human activity.	1.00
Dominant land use / condition within the buffer is minimally altered by human activity (<i>e.g.</i> , one -lane dirt roads and/or narrow human trails, open space park and/or recreation facilities, low density housing (1 house/100 acres), <i>etc.</i>)	0.75
a. Dominant land use / condition within the buffer is moderately altered by human activity (<i>e.g.</i> , paved roads, moderate density housing (1 house/ 10 acres), lawns and/or ornamental gardens, non-hardened flood control structures, <i>etc.</i>) and	0.50
b. $\leq 50\%$ of the PAA has been cleared of vegetation.	
a. Dominant land use / condition within the buffer is extensively altered by human activity (<i>e.g.</i> , paved roads, parking lots, hardened flood control structures, high density housing (>1 house/acre), commercial development, <i>etc.</i>) and	0.25
b. $> 50\%$ but $\leq 95\%$ of the PAA has been cleared of vegetation, or	
c. Vegetation has been cleared and replaced by row crops, orchards, <i>etc.</i>	
a. Dominant land use / condition within the designated buffer is extensively altered and/or continuously cleared by human activity (<i>e.g.</i> , paved roads, parking lots, hardened flood control structures, high density housing (>1 house/acre), commercial development, <i>etc.</i>), and	0.10
b. $> 95\%$ of the PAA has been cleared of vegetation, and	
c. The variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied.	
a. Dominant land use / condition within the designated buffer is characterized completely by anthropogenic impervious surfaces (<i>e.g.</i> , roads, parking lots, buildings) and	0.00
b. The variable is neither recoverable to reference standard conditions nor sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied.	

Table 5.4 Scaling for High, Medium, and Low Gradient Subclasses

MEASUREMENT CONDITION FOR V_{BUFFCONT}	INDEX
Vegetated buffer (rural, 100 ft; urban, 50 ft) is continuous on both sides of the stream channel, throughout the PAA.	1.00
Vegetated buffer (rural, 100 ft; urban, 50 ft) is broken once by human activities on either side of the stream channel within the PAA (<i>e.g.</i> , roads, power lines, agriculture, trails, lawns and/or ornamental gardens, flood control structures, <i>etc.</i>).	0.75
Vegetated buffer (rural, 100 ft; urban, 50 ft) is broken by human activities once on each side of the stream channel or twice on one side of the channel within the PAA (<i>e.g.</i> , roads, power lines, agriculture, trails, lawns and/or ornamental gardens, flood control structures, <i>etc.</i>).	0.50
Vegetated buffer (rural, 100 ft; urban, 50 ft) is broken by human activities repetitively (\geq three times) on either or both sides of the stream channel within the PAA (<i>e.g.</i> , roads, power lines, agriculture, trails, lawns and/or ornamental gardens, flood control structures, <i>etc.</i>).	0.25
a. Vegetated buffer (rural, 100 ft; urban, 50 ft) does not exist on either or both sides of the stream channel, within the PAA and	0.10
b. Variable is recoverable and sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied.	
a. Vegetated buffer (rural, 100 ft; urban, 50 ft) does not exist on either or both sides of the stream channel, within the PAA and	0.00
b. Variable is not recoverable and not sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , parking lot, concrete channel, commercial and/or residential buildings, <i>etc.</i>)	

Table 5.5 Scaling for High, Medium and Low Gradient Subclasses

MEASUREMENT CONDITION FOR $V_{\text{BUFFWIDTH}}$	INDEX
a. If zoned “rural” by Santa Barbara County, then the average vegetated buffer width within the PAA is ≥ 100 ft on both sides of the stream channel or	1.00
b. If zoned “urban” by Santa Barbara County the average vegetated buffer width within the PAA is ≥ 50 ft on both sides of the stream channel.	
a. If zoned “rural” by Santa Barbara County, then the average vegetated buffer width within the PAA is ≥ 75 ft but <100 ft on sides of the stream channel or	0.75
b. If zoned “urban” by Santa Barbara County, then the average vegetated buffer width within the PAA is ≥ 38 ft but < 50 ft on both sides of the stream channel	
a. If zoned “rural” by Santa Barbara County, then the average vegetated buffer width within the PAA is ≥ 50 but <75 ft on both sides of the stream channel or	0.50
b. If zoned “urban” by Santa Barbara County, then the average vegetated buffer width within the PAA is ≥ 25 ft but < 38 ft on both sides of the stream channel	
a. If zoned “rural” by Santa Barbara County, then the average vegetated buffer width within the PAA is ≥ 25 ft but < 50 ft on both sides of the stream channel or	0.25
b. If zoned “urban” by Santa Barbara County, then the average vegetated buffer width within the PAA is ≥ 13 ft but < 25 ft on both sides of the stream channel	
a. If zoned “rural” by Santa Barbara County, then the average vegetated buffer width within the PAA is < 25 ft on both sides of the stream channel or	0.10
b. If zoned “urban” by Santa Barbara County, then the average vegetated buffer width within the PAA is < 13 ft on both sides of the stream channel and	
c. The variable is recoverable and sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied.	
a. If zoned “rural” by Santa Barbara County, then the average vegetated buffer width within the PAA is < 25 ft on both sides of the stream channel or	0.00
b. If zoned “urban” by Santa Barbara County, then the average vegetated buffer width within the PAA is < 13 ft on both sides of the stream channel and	
c. Variable is neither recoverable nor sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied.	

Table 5.6 Mean, standard deviation and range of the average immobile bed roughness for the High and Medium gradient subclasses

DISTURBANCE GRADIENT	SAMPLE SIZE	AVERAGE IMMOBILE BED ROUGHNESS (MEAN, SD, RANGE)
Unaltered / Reference Standard	4	$23 \pm 23 = 0$ to 52
Minimally Altered	10	$18 \pm 10 = 4$ to 35
Moderately Altered	16	$7 \pm 11 = 0$ to 44
Extensively Altered	8	$1 \pm 3 = 0$ to 7
Unrecoverable	0	NA

Table 5.7 Mean, standard deviation and range of the average immobile bed roughness for the Low gradient subclasses

DISTURBANCE GRADIENT	SAMPLE SIZE	AVERAGE IMMOBILE BED ROUGHNESS (MEAN, SD, RANGE)
Unaltered / Reference Standard	0	NA
Minimally Altered	2	$2 \pm 2 = 0$ to 3
Moderately Altered	3	$1 \pm 1 = 0$ to 2
Extensively Altered	12	$3 \pm 3 = 0$ to 8
Unrecoverable	2	0

Table 5.8 Scaling for High and Medium Gradient Subclasses

MEASUREMENT CONDITION FOR $V_{\text{CHANROUGH}}$	INDEX
a. $\geq 25\%$ of the channel cross sectional area is occupied by natural roughness elements such as boulders, imbedded logs, bedrock, <i>etc.</i> and b. there is no evidence historic human disturbance of channel roughness.	1.00
a. $\geq 25\%$ of the channel cross sectional area is dominated by natural roughness elements such as boulders, embedded logs, bedrock, <i>etc.</i> and b. there is evidence of human disturbance of channel roughness	0.75
a. ≥ 5 and $<25\%$ of the channel cross sectional area is occupied by roughness elements that may include both natural and anthropogenic material (<i>e.g.</i> boulders, concrete fragments and/or structures, <i>etc.</i>), and b. Channel cross section is dominated by natural roughness elements (<i>e.g.</i> boulders, rocks, coarse embedded logs, <i>etc.</i>).	0.50
a. $\geq 5\%$ and $< 25\%$ of the channel cross sectional area is dominated by anthropogenic elements that consist of material(s) that by their placement or construction provide roughness (<i>e.g.</i> rip rap, concrete fragments and/or structures, pipe and wire bank stabilization, storm drain discharges, <i>etc.</i>), and b. Channel cross section is dominated by anthropogenic roughness elements (<i>e.g.</i> rip rap, concrete fragments, engineered structures that are not hardened with concrete or mortar, <i>etc.</i>).	0.25
a. $<5\%$ of the channel cross sectional area is dominated by roughness elements that consist of anthropogenic material(s) and b. Variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied.	0.10
Channel cross section is smooth and concrete or mortared rip rap on both sides and the variable is not recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied. (<i>e.g.</i> , concrete trapezoidal channel, parking lot, box culvert, roads, <i>etc.</i>)	0.00

Table 5.9 Scaling for the Low Gradient Subclass

MEASUREMENT CONDITION FOR $V_{\text{CHANROUGH}}$	INDEX
a. $\geq 5\%$ of the channel cross sectional area is occupied by natural roughness elements such as boulders, embedded logs, bedrock, <i>etc.</i> and	1.00
b. there is no evidence historic human disturbance of channel roughness	
a. $\geq 5\%$ of the channel cross sectional area is occupied by natural channel roughness elements such as boulders, embedded logs, bedrock, <i>etc.</i> and	0.75
b. Evidence historic human disturbance of channel roughness is present	
>0 and $<5\%$ of the channel cross sectional area is occupied by roughness elements that may include both natural and anthropogenic material (<i>e.g.</i> concrete fragments and/or structures, rip rap, <i>etc.</i>)	0.50
$>0\%$ and $<5\%$ of the channel cross sectional area is dominated by anthropogenic roughness elements that by their placement or construction provide roughness (<i>e.g.</i> pipe and wire structures, rip-rap walls, rivetment, concrete fragments and/or structures, <i>etc.</i>)	0.25
a. Channel cross section is smooth and rip-rap or post and wire on one side and	0.10
b. Variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> "dirty" rip rap or rivetment hardening of 1/2 channel cross section; post and wire confinement of the channel on one side of the channel)	
a. Channel cross section is smooth and concrete on both sides and	0.00
b. Variable is not recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied. Existing land use is discontinued and no restoration measures are applied, <i>e.g.</i> , concrete trapezoidal channel, parking lot, box culvert, roads, <i>etc.</i>	

Table 5.10 The 5 decomposition classes for CWD

DECOMPOSITION CLASS	DESCRIPTION
1	CWD recently fallen, bark attached, leaves and fine twigs present
2	CWD with loose bark, no leaves and/or fine twigs, fungi present
3	CWD without bark, few branches present, fungi present
4	CWD without bark, and branches, heartwood in advanced state of decay
5	CWD decayed into organic material on ground

Table 5.11 Mean, standard deviation and range of the total CWD volume below OHW for the High, Medium and Low Gradient subclass

LAND USE GRADIENT	SAMPLE SIZE	MODE OF DECOMPOSITION CLASSES BELOW OHW (MEAN, SD, RANGE)	AVERAGE NUMBER OF DECOMPOSITION CLASSES BELOW OHW (MEAN, SD, RANGE)
Unaltered / Reference Standard	4	3	$2.62 \pm 0.74 = 2 \text{ to } 4$
Minimally Altered	12	3	$1.79 \pm 0.93 = 0 \text{ to } 3$
Moderately Altered	19	2	$1.24 \pm 0.98 = 0 \text{ to } 4$
Extensively Altered	20	0	$0.7 \pm 0.85 = 0 \text{ to } 3$
Unrecoverable	0	0	0

Table 5.12 Scaling for High, Medium, and Low gradient subclasses

MEASUREMENT CONDITION FOR V_{DECOMP}	INDEX
a. Total number of decomposition classes below OHW is ≥ 3 and	1.00
b. Mode (most frequent occurrence) of decomposition class is ≥ 3 .	
a. Total number of decomposition classes below OHW is ≥ 3 and	0.75
b. Mode (most frequent occurrence) of decomposition class is ≥ 1 and < 3 .	
a. Total number of decomposition classes below OHW is 2 and	0.50
b. Mode (most frequent occurrence) of decomposition class is ≥ 3 .	
a. Total number of decomposition classes below OHW is 2 and	0.25
b. Mode (most frequent occurrence) of decomposition class is ≥ 1 and < 3 .	
a. Total number of decomposition classes below OHW is ≤ 1 and	0.10
b. Variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and restoration measures are applied.	
a. Total number of decomposition classes below OHW is ≤ 1 and	0.00
b. Variable is not recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and restoration measures are applied.	

Table 5.13 Scaling for High, Medium and Low Gradient Subclasses

MEASUREMENT CONDITION FOR V_{EMBED}	INDEX
Larger class channel bed material is embedded $\geq 50\%$ along its vertical axis in either skeletal sands (sand with $>35\%$ gravel, cobbles and stones) or a cobble and stone matrix that is mixed with little to no loamy material	1.00
No measurement condition for this index score.	0.75
Larger class channel bed material is embedded:	0.50
a. $<50\%$ along its vertical axis in a matrix predominated by skeletal sand (sand with $>35\%$ gravel, cobbles and stones) or cobbles and stones or	
b. $>50\%$ along its vertical axis in loamy or finer material.	
No measurement condition for this index score.	0.25
a. Larger class channel bed material is:	0.10
1. Embedded $< 50\%$ along its vertical axis in a matrix consisting of skeletal sands (sand with $>35\%$ gravel, cobbles and stones) mixed with a relatively high proportion ($>33\%$) of loamy or finer material, or	
2. Not embedded by virtue of the size class distribution of channel bed materials (<i>e.g.</i> channel bed materials consist of sand and/or loamy material with no larger particles) and	
b. Variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied.	
a. Channel bed is concrete or other impervious material that will not allow materials to become embedded, and	0.00
b. Variable is neither recoverable to reference standard conditions nor sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied.	

Table 5.14 Mean, standard deviation and range of percent cover for forbs for High, Medium and Low subclasses

DISTURBANCE GRADIENT	SAMPLE SIZE	PERCENT FORBS COVER (MEAN, SD, RANGE)
Unaltered / Reference Standard	4	37 ± 21 ; 10.5 to 63
Minimally Altered	13	26 ± 11 ; 10.5 to 38
Moderately Altered	18	27 ± 20 ; 10.5 to 85.5
Extensively Altered	20	23 ± 11 ; 3 to 38
Unrecoverable	2	33 ± 42 ; 3 to 63

Table 5.15 Scaling for High, Medium, and Low gradient subclasses

MEASUREMENT CONDITION FOR V _{HERBCC}	INDEX
a. Average herbaceous cover > 3% and ≤ 10% and	1.00
b. Cover class midpoint for the dominant herb species is not > 38% and	
c. Vegetation in the 50 ft or 100 ft buffer is unaltered by human activities.	
a. Average herbaceous cover > 3% and ≤ 10% and	0.75
b. Cover class midpoint for the dominant herb species is not > 38% and	
c. Vegetation in the 50 ft or 100 ft buffer is altered by human activities (<i>e.g.</i> , partial clearing of the buffer vegetation by grazing of domestic livestock, crop production, parks, urban/suburban development, flood control access, <i>etc.</i>). .	
a. Average herbaceous cover > 10% and ≤ 30% and	0.50
b. Cover class midpoint for the dominant herb species is not > 63% and	
c. Vegetation in the 50 ft or 100 ft buffer is altered by human activities (<i>e.g.</i> , partial clearing of the buffer vegetation by grazing of domestic livestock, crop production, parks, urban/suburban development, flood control access, <i>etc.</i>).	
a. Average herbaceous cover ≤ 3% and	0.25
b. Cover class midpoint for the dominant herb species ≤ 3% and	
c. Vegetation is recently altered (within the last 5 years) by human activities or	
d. Average herbaceous cover > 30% and	
e. Cover class midpoint for the dominant herb species is not > 63% and	
f. Vegetation in the 50 ft or 100 ft buffer is altered by human activities (<i>e.g.</i> , partial clearing of the buffer vegetation by grazing of domestic livestock, crop production, parks, urban/suburban development, flood control access, <i>etc.</i>).	
a. Average herbaceous cover is 0% or	0.10
b. Cover class midpoint for the dominant herb species is 98% due to human activities and	
c. Variable is recoverable and sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied.	
a. Average herbaceous cover is 0% and	0.00
b. Variable is not recoverable and not sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied.	

Table 6.16 Mean, standard deviation and range of the total CWD volume below OHW for the High, Medium and Low gradient subclasses

LAND USE GRADIENT	SAMPLE SIZE	TOTAL CWD VOLUME BELOW OHW (MEAN, SD, RANGE)
Unaltered / Reference Standard	4	162.51 ± 187.23 ; 96.8 to 440.39
Minimally Altered	12	28.75 ± 38.95 ; .54 to 98.81
Moderately Altered	19	35.09 ± 54.77 ; 0 to 234.50
Extensively Altered	20	20.53 ± 43.04 ; 0 to 144.54
Unrecoverable	0	0

Table 6.17 Scaling for High, Medium, and Low Gradient Subclasses

MEASUREMENT CONDITION FOR V_{INCWD}	INDEX
a. Total CWD volume below OHW and within the PAA is $\geq 100 \text{ ft}^3$ and	1.00
b. PAA has been unaltered by human activities.	
a. Total CWD volume below OHW and within the PAA is $\geq 75 \text{ ft}^3$ and $< 100 \text{ ft}^3$ and	0.75
b. CWD volume within the channel has been altered by human activities.	
a. Total CWD volume below OHW and within the PAA is $\geq 50 \text{ ft}^3$ and $< 75 \text{ ft}^3$ or	0.50
b. $\geq 100 \text{ ft}^3$ due to artificial (human) augmentation via dumping of slash material, <i>etc.</i>	
a. Total CWD volume below OHW and within the PAA is $\geq 25 \text{ ft}^3$ and $< 50 \text{ ft}^3$ and	0.25
b. CWD volume within the channel has been altered by human activities (<i>i.e.</i> flood control removal).	
a. Total CWD volume below OHW and within the PAA is $< 25 \text{ ft}^3$ and	0.10
b. Variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and restoration measures are applied.	
a. Total CWD volume below OHW and within the PAA is $< 25 \text{ ft}^3$ and	0.00
b. Variable is not recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and restoration measures are applied.	

Table 5.18 Scaling for High and Medium Gradient Subclasses

MEASUREMENT OR CONDITION FOR V _{LANDUSE}	INDEX
<p>a. Project site sub-watershed is dominated by land use classes that are composed of a high proportion (> 85%) of native chaparral/forest (ETM Class 6) and native chaparral/woodland (ETM Class 5) and</p> <p>b. No evidence of human alteration of the project site sub-watershed (<i>i.e.</i> hiking trails, abandoned fire or ranch roads, old/abandoned homesteads, <i>etc.</i> are acceptable under this condition)</p>	1.00
<p>a. Project site sub-watershed is dominated by land use classes that are composed of a high proportion (> 85%) of native chaparral/forest (ETM Class 6) and native chaparral/woodland (ETM Class 5) and</p> <p>b. Some evidence of human alteration of the project site sub-watershed (<i>e.g.</i> light grazing by domestic livestock, infrequently used fire or ranch roads, broadcast structures, power line rights of way, very low housing density (<i>e.g.</i> 1 house/100 acres), <i>etc.</i> are acceptable under this condition)</p>	0.75
<p>a. ≥ 60% and < 85% of the project site sub-watershed is composed of native chaparral/forest (ETM Class 6) and native chaparral/woodland (ETM Class 5) land use classes and</p> <p>b. Evidence of human alteration of the reference sub-watershed (<i>e.g.</i> moderate grazing (ETM class 7 - grasslands) by domestic livestock, agriculture (ETM class 3 - irrigated agriculture), frequently used fire, ranch, and/or public roads, power line rights of way, low housing density (<i>e.g.</i> 1 house/10 acres), <i>etc.</i> are acceptable under this condition)</p>	0.50
<p>a. ≥ 40% and < 60% of the project site sub-watershed consists of native chaparral/forest (ETM Class 6) and native chaparral/woodland (ETM Class 5) land use classes and</p> <p>b. Evidence of human alteration of the project site sub-watershed (<i>e.g.</i> moderate to heavy grazing by domestic livestock (ETM class 7 - grasslands & ETM class 8 - heavily grazed/exposed soils), agriculture (ETM class 3 - irrigated agriculture), frequently used fire, ranch, and/or public roads, power line rights of way, medium housing density (<i>e.g.</i> 1 house/acre), <i>etc.</i> are acceptable under this condition).</p>	0.25
<p>a. ≥ 20% and < 40% of the project site sub-watershed consists of native chaparral/forest (ETM Class 6) and native chaparral/woodland (ETM Class 5) land use classes and</p> <p>b. Evidence of extensive human alteration of the project site sub-watershed (<i>e.g.</i>, heavy grazing by domestic livestock (ETM class 8 - heavily grazed/exposed soils), frequently used fire, ranch, and/or public roads, power line rights of way, high housing densities (<i>e.g.</i> multiple houses/acre (ETM class 2 - urban/impervious surfaces)), <i>etc.</i> are acceptable under this condition).</p>	0.10
<p>a. ≤ 20% of the project site sub-watershed consists of native chaparral/forest (ETM Class 6) and native chaparral/woodland (ETM Class 5) land use classes and</p> <p>b. there is evidence of extensive human alteration of the project site sub-watershed (<i>e.g.</i> heavy grazing by domestic livestock (ETM class 8 - heavily grazed/exposed soils), frequently used fire, ranch, and/or public roads, power line rights of way, high housing densities (<i>e.g.</i> multiple houses/acre (ETM class 2 - urban/impervious surfaces)), <i>etc.</i> are acceptable under this condition).</p>	0.0

Table 5.19 Scaling for the Low Gradient Subclass

MEASUREMENT OR CONDITION FOR $V_{LANDUSE}$	INDEX
<p>a. Project site sub-watershed is dominated by land use classes that are composed of > 65% native chaparral/forest (ETM Class 6), native chaparral/woodland (ETM Class 5), and scrub-shrub/coastal chaparral (ETM Class 4) and</p> <p>b. No evidence of human alteration of the project site sub-watershed (<i>i.e.</i> hiking trails, abandoned fire or ranch roads, old/abandoned homesteads, <i>etc.</i> are acceptable under this condition)</p>	1.0
<p>a. Project site sub-watershed is dominated by land use classes that are composed of > 65% native chaparral/forest (ETM Class 6), native chaparral/woodland (ETM Class 5), and scrub-shrub/coastal chaparral (ETM Class 4) and</p> <p>b. Some evidence of human alteration of the project site sub-watershed (<i>e.g.</i> light grazing by domestic livestock, infrequently used fire or ranch roads, power line rights of way, very low housing density (<i>e.g.</i> 1 house/100 acres), <i>etc.</i> are acceptable under this condition)</p>	0.75
<p>a. $\geq 45\%$ and $< 65\%$ of the project site sub-watershed is composed of native chaparral/forest (ETM Class 6), native chaparral/woodland (ETM Class 5), and scrub-shrub/coastal chaparral (ETM Class 4) and</p> <p>b. Evidence of human alteration of the project site sub-watershed (<i>e.g.</i> moderate grazing by domestic livestock (ETM Class 7 -grassland), agriculture (ETM Class 3 - irrigated agriculture), frequently used fire or ranch roads, power line rights of way, low housing density (<i>e.g.</i> 1 house/10 acres), <i>etc.</i> are acceptable under this condition)</p>	0.50
<p>a. $\geq 25\%$ and $< 45\%$ of the project site sub-watershed is composed of native chaparral/forest (ETM Class 6), native chaparral/woodland (ETM Class 5), and scrub-shrub/coastal chaparral (ETM Class 4) and</p> <p>b. Evidence of human alteration of the project site sub-watershed (<i>e.g.</i> moderate to heavy grazing by domestic livestock (ETM Class 7 - grassland and ETM Class 8 - heavily grazed/exposed soils), agriculture (ETM Class 3 - irrigated agriculture), frequently used public roads, power line rights of way, medium housing density (<i>e.g.</i> 1 house/acre), <i>etc.</i> are acceptable under this condition).</p>	0.25
<p>a. $\geq 10\%$ and $< 25\%$ of the project site sub- watershed is composed of native chaparral/forest (ETM Class 6), native chaparral/woodland (ETM Class 5), and scrub-shrub/coastal chaparral (ETM Class 4) and</p> <p>b. Evidence of extensive human alteration of the project site sub-watershed (<i>e.g.</i> heavy grazing by domestic livestock (ETM Class 8 - heavily grazed/exposed soils), frequently used public roads, power line rights of way, high housing densities (<i>e.g.</i> multiple houses/acre) (ETM Class 2 - urban/impervious surfaces), <i>etc.</i> are acceptable under this condition).</p>	0.1
<p>a. $\leq 10\%$ of the project site sub-watershed is composed of native chaparral/forest (ETM Class 6), native chaparral/woodland (ETM Class 5), and scrub-shrub/coastal chaparral (ETM Class 4) and</p> <p>b. Evidence of extensive human alteration of the project site sub-watershed (<i>e.g.</i> heavy grazing by domestic livestock (ETM Class 7 & 8), frequently used public roads, power line rights of way, high housing densities (<i>e.g.</i> multiple houses/acre) (ETM Class 2 - urban/impervious surfaces), <i>etc.</i> are acceptable under this condition is observed).</p>	0.0

Table 5.20 List of streams in reference domain with a debris basin

BASIN	DESIGN CAPACITY	WATERSHED BASIN IN ACRES	CONSTRUCTION DATE
Arroyo Paredon Creek	24,000 c.y.	750	Romero 1971
Cold Springs Creek	20,450 c.y.	2350	Coyote 1964
East Toro Cyn Creek	15,000 c.y.	400	Romero 1971
Franklin Main	12,400 c.y.	450	Romero 1971
Gobernador Creek	46,500 c.y.	4500	Romero 1971
Hog Canyon (Franklin)		180	
Hospital		543	
Lillingston Cyn Creek (Gobernador)	45,000 c.y.	3200	Romero 1971
Lower West Toro Creek	56,000 c.y.	380	Romero 1971
Maria Ygnacio – East	60,000 c.y.	1000	Painted Cave 1990
Maria Ygnacio – Main	30,000 c.y.	2100	Painted Cave 1990
Mission Canyon	15,000 c.y.	1550	Coyote 1964
Montecillo	3,000 c.y.	1796	2001
Rattlesnake Creek	8,300 c.y.	1400	Coyote 1964
Romero Creek	27,000 c.y.	1100	Romero 1971
San Antonio Creek	34,000 c.y.	2600	Coyote 1964
San Rosque Creek	40,000 c.y.	2200	Coyote 1964
San Ysidro Creek	11,000 c.y.	1700	Coyote 1964
Santa Monica	208,000 c.y.	2100	CVWPP 1977
Upper West Toro Creek	29,000 c.y.	606	Romero 1971

Table 5.21 Scaling for High, Medium, and Low Gradient Subclasses

MEASUREMENT CONDITION FOR $V_{LONGPROF}$	INDEX
The longitudinal channel slope within the PAA study reach (<i>i.e.</i> , upstream or downstream seven times the OHW channel width from the main cross section) or upstream or downstream from the PAA study reach is unaffected by human activities.	1.00
Human Activities:	0.75
<ul style="list-style-type: none"> a. Have not occurred within the PAA study reach (<i>i.e.</i>, Upstream or downstream seven times the OHW channel width from the main cross section), or b. Have occurred upstream or downstream of the PAA boundary, however, these activities have not resulted in development of hardened, engineered structures in the channel (<i>e.g.</i> Clearing of vegetation, temporary road or foot trail crossings, culverts without hardened/concrete drop-ins, limited, temporary construction activities, <i>etc.</i>). 	
Human Activities:	0.50
<ul style="list-style-type: none"> a. Have occurred within the PAA study reach (<i>i.e.</i>, Upstream or downstream seven times the OHW channel width from the main cross section), however these activities have not resulted in development of hardened, engineered structures in the channel (<i>e.g.</i> Clearing of vegetation, small road or trail crossings, culverts without hardened/concrete drop-ins, limited, temporary construction activities, <i>etc.</i>), or b. Have occurred upstream or downstream of the PAA boundary and have resulted in development of hardened, engineered structures in the channel (<i>e.g.</i>, debris basins, permanent road, foot or off-road vehicle trail crossings, culverts with hardened/concrete drop-ins, construction activities, post and wire channel controls, <i>etc.</i>). 	
<ul style="list-style-type: none"> a. Longitudinal channel slope within the PAA (<i>i.e.</i> Upstream or downstream seven times the OHW channel width from the main cross section) and b. Upstream or downstream from the PAA has been altered by in-channel grading (<i>e.g.</i>, to control vegetation) or dredging and/or by the placement of non-permanent control structures (<i>e.g.</i>, temporary water diversions or bank stabilization efforts, post and wire bank stabilization structures, <i>etc.</i>) 	0.25
Longitudinal channel slope within the PAA (<i>i.e.</i> , upstream or downstream seven times the OHW channel width from the main cross section) has been altered by:	0.10
<ul style="list-style-type: none"> a. Engineered and hardened grade control or other structure(s) (<i>e.g.</i> dirty or grouted rip rap channel banks and toe slopes, hardened grade control structures, <i>etc.</i>), and b. Grade control activities (<i>e.g.</i> dredging, grading, installation of hardened engineered structures) upstream and downstream of the PAA, and c. Variable is recoverable and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied. 	
Longitudinal channel slope within the PAA (<i>i.e.</i> upstream or downstream seven times the OHW channel width from the main cross section) and/or upstream or downstream of the PAA has been permanently altered by filling the channel bed with impervious materials (<i>e.g.</i> , concrete trapezoids, concrete weirs and ramps, grouted rip rap <i>etc.</i>). The variable is neither recoverable nor sustainable through natural processes, if the existing land use is discontinued and no restoration measures are applied.	0.00

Table 5.22 Mean, standard deviation and range of the total CWD volume below OHW for the High, Medium and Low gradient subclasses

LAND USE GRADIENT	SAMPLE SIZE	TOTAL CWD VOLUME/ .1 ACRES ABOVE OHW, IN PAA (MEAN, SD, RANGE)
Unaltered / Reference Standard	4	77.71 ± 75.56 ; 7.4 to 144.6
Minimally Altered	12	43.01 ± 35.5 ; 0 to 113.0
Moderately Altered	19	78.05± 115.1 ; 0 to 436.3
Extensively Altered	20	9.69± 20.0 ; 0 to 82.4
Unrecoverable	0	0

Table 5.23 Scaling for High, Medium, and Low Gradient Subclasses

MEASUREMENT CONDITION FOR V_{OFFCWD}	INDEX
a. Total CWD volume above OHW and within the PAA is $\geq 125 \text{ ft}^3$ and b. PAA has been unaltered by human activities.	1.00
a. Total CWD volume below OHW and within the PAA is $\geq 75 \text{ ft}^3$ and $< 125 \text{ ft}^3$ and b. CWD volume within the channel has been altered by human activities.	0.75
a. Total CWD volume below OHW and within the PAA is $\geq 50 \text{ ft}^3$ and $< 75 \text{ ft}^3$ or b. Total CWD volume below OHW and within the PAA is $\geq 125 \text{ ft}^3$ due to artificial (human) augmentation via dumping of slash material, <i>etc.</i>	0.50
a. Total CWD volume below OHW and within the PAA is $\geq 25 \text{ ft}^3$ and $< 50 \text{ ft}^3$ and b. CWD volume within the channel has been altered by human activities (<i>i.e.</i> , flood control removal).	0.25
a. Total CWD volume below OHW and within the PAA is $< 25 \text{ ft}^3$ and b. Variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and restoration measures are applied.	0.10
a. Total CWD volume below OHW and within the PAA is $< 25 \text{ ft}^3$ and b. Variable is not recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and restoration measures are applied.	0.00

Table 5.24 Scaling For High and Medium Gradient Subclasses

MEASUREMENT CONDITION FOR $V_{\text{PATCHAREA}}$	INDEX
Habitat patches classified as “good” habitat cover ≥ 95 % of the 1000 ft PAA ring.	1.00
Habitat patches classified as “good” habitat cover ≥ 75 % but < 95 % of the 1000 ft PAA ring.	0.75
Habitat patches classified as “good” and/or "fair" habitat cover ≥ 50 % but < 75 % of the 1000 ft PAA ring.	0.50
Habitat patches classified as “good” and/or "fair" habitat cover ≥ 25 % but < 50 % of the 1000 ft PAA ring.	0.25
a. Habitat patches classified as “good” and/or "fair" habitat cover < 25 % of the 1000 ft PAA ring and b. Variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied.	0.10
a. Habitat patches classified as “good” and/or "fair" habitat cover < 25 % of the 1000 ft PAA ring and b. Variable is not recoverable to reference standard conditions are not sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied.	0.00

Table 5.25 Scaling For Low Gradient Subclasses

MEASUREMENT CONDITION FOR $V_{\text{PATCHAREA}}$	INDEX
Habitat patches classified as “good” habitat cover ≥ 65 % of the 1000 ft PAA ring.	1.00
Habitat patches classified as “good” habitat cover ≥ 45 % but < 65 % of the 1000 ft PAA ring.	0.75
Habitat patches classified as “good” and/or "fair" habitat cover ≥ 30 % but < 45 % of the 1000 ft PAA ring.	0.50
Habitat patches classified as “good” and/or "fair" habitat cover ≥ 15 % but < 30 % of the 1000 ft PAA ring.	0.25
Habitat patches classified as “good” and/or "fair" habitat cover < 15 % of the 1000 ft PAA ring and Variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied.	0.10
Habitat patches classified as “good” and/or "fair" habitat cover < 15 % of the 1000 ft PAA ring and Variable is not recoverable to reference standard conditions are not sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied.	0.00

Table 5.26 Scaling For High, Medium, and Low Gradient Subclasses

MEASUREMENT CONDITION FOR $V_{\text{PATCHCONTIG}}$	INDEX
The project site sub-watershed contains no stream reaches classified as “unsuitable” habitat.	1.00
The project site sub-watershed contains 1 to 3 stream reaches classified as “unsuitable” habitat.	0.75
The project site sub-watershed contains 4 to 6 stream reaches classified as “unsuitable” habitat.	0.50
The project site sub-watershed contains 7 to 9 stream reaches classified as “unsuitable” habitat.	0.25
a. The project site sub-watershed contains	0.10
1. > 9 stream reaches classified as “unsuitable” habitat, and/or	
2. The stream network in the project site sub-watershed never reaches the "core" wilderness habitat patch, and/or	
3. The entire stream network in the project site sub-watershed is classified as “unsuitable” habitat due to urbanization/vegetation clearing, and	
b. Variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied.	
a. The project site sub-watershed contains	0.00
1. > 9 stream reaches classified as “unsuitable” habitat, and/or	
2. The stream network in the project site sub-watershed never reaches the "core" wilderness habitat patch, and/or	
3. The entire stream network in the project site sub-watershed is classified as “unsuitable” habitat due to urbanization/vegetation clearing, and	
b. Variable is not recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied.	

Table 5.27 Scaling for High, Medium, and Low Gradient Subclasses

MEASUREMENT CONDITION FOR $V_{\text{PATCHNUMBER}}$	INDEX
The 1000 ft PAA ring contains/intersects 1 “good” habitat patch.	1.00
The 1000 ft PAA ring contains/intersects 2 to 3 “good” habitat patches	0.75
The 1000 ft PAA ring contains/intersects:	0.50
a. 4 to 5 “good” habitat patches and/or	
b. 1 to 2 “fair” habitat patches	
The 1000 ft PAA ring contains/intersects:	0.25
a. ≥ 6 “good” habitat patches and/or	
b. 3 to 4 “fair” habitat patches	
a. The 1000 ft PAA ring contains/intersects:	0.10
1. ≥ 6 “good” habitat patches and/or	
2. ≥ 5 “fair” habitat patches and/or	
b. There are no habitat patches within the 1000’ PAA ring and the variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied.	
a. The 1000 ft PAA ring contains/intersects:	0.00
1. ≥ 6 “good” habitat patches and/or	
2. ≥ 5 “fair” habitat patches and/or	
b. There are no habitat patches within the 1000’ PAA ring and the variable is not recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied.	

Table 5.28 Mean, standard deviation and range of the ratio of native to non-native plant species for High, Medium, and Low Gradient subclasses

DISTURBANCE GRADIENT	SAMPLE SIZE	RATIO OF NATIVE TO NON-NATIVE DOMINANT PLANT SPECIES (MEAN, SD, RANGE)
Unaltered / Reference Standard	4	6.69 ± 1.28 ; 5.25 to 8.00
Minimally Altered	13	2.71 ± 1.8 ; 1.29 to 6.75
Moderately Altered	18	1.41 ± 1.29 ; 0.50 to 6.00
Extensively Altered	20	1.16 ± 1.71 ; .17 to 8.00
Unrecoverable	2	$.58 \pm .6$; .15 to 1.00

Table 5.29 Scaling for High, Medium, and Low Gradient Subclasses

MEASUREMENT CONDITION FOR V_{RATIO}	INDEX
Average ratio of native to non-native dominant plant species $\geq 7:1$.	1.00
Average ratio of native to non-native dominant plant species $\geq 5:1$ and $< 7:1$.	0.75
Average ratio of native to non-native dominant plant species $\geq 3:1$ and $< 5:1$.	0.50
Average ratio of native to non-native dominant plant species $\geq 1:1$ and $< 3:1$.	0.25
a. Average ratio of native to non-native dominant plant species is $< 1:1$ and	0.10
b. The variable is recoverable and sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied.	
a. Average ratio of native to non-native dominant plant species is $< 1:1$ and	0.00
b. The variable is not recoverable and not sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied.	

Table 5.30 Mean, standard deviation, and ranges of average seedling/sapling percent coverage for High, Medium and Low Gradient subclasses

DISURBANCE GRADIENT	SAMPLE SIZE	AVERAGE SEEDLING/SAPLING COVERAGE (MEAN, SD, RANGE)
Unaltered / Near Reference Standard	4	11.1 ± 7.2 ; 3 to 20.5
Minimally Altered	13	6.5 ± 10.5 ; 0 to 38
Moderately Altered	18	11.1 ± 10.8 ; 0 to 38
Extensively Altered	20	3.8 ± 4.2 ; 0 to 10.5
Unrecoverable	2	0 ; 0 to 0

Table 5.31 Scaling For High, Medium, and Low Gradient Subclasses

MEASUREMENT CONDITION FOR V_{REGEN}	INDEX
Average seedling/sapling percent cover class $\geq 38\%$	1.00
Average seedling/sapling percent cover class $\geq 20.5\%$ but $< 38\%$	0.75
Average seedling/sapling percent cover class $\geq 10.5\%$ but $< 20.5\%$	0.50
Average seedling/sapling percent cover class $> 0\%$ but $< 10.5\%$	0.25
a. Average seedling/sapling percent cover class is 0% , and	0.10
b. Variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , site cleared through heavy grazing of domestic livestock, developed park, and crop production).	
a. Average seedling/sapling percent cover class is 0% , and	0.00
b. Variable is neither recoverable nor sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , concrete trapezoidal channel, parking lot, box culvert, roads, <i>etc.</i>).	

Table 5.32 Mean, standard deviation, and range of the number and average distance between of residual pools in the High Gradient subclass

DISTURBANCE GRADIENT	SAMPLE SIZE	NUMBER OF RESIDUAL POOLS IN PAA (MEAN, SD, AND RANGE)	AVERAGE DISTANCE BETWEEN RESIDUAL POOLS (MEAN, SD, RANGE)
Unaltered / Reference Standard	3	12.7 ± 8 ; 3 to 18	25.7 ± 9.5 ; 19 to 37
Minimally Altered	2	5 ; 4 to 6	33.1 ; 26 to 40
Moderately Altered	0	N/A	N/A
Extensively Altered	0	N/A	N/A
Unrecoverable	0	N/A	N/A

Table 5.33 Mean, standard deviation, and range of the number and average distance between of residual pools in the Medium Gradient subclass

DISTURBANCE GRADIENT	SAMPLE SIZE	NUMBER OF RESIDUAL POOLS IN PAA (MEAN, SD, AND RANGE)	AVERAGE DISTANCE BETWEEN RESIDUAL POOLS (MEAN, SD, RANGE)
Unaltered / Reference Standard	1	17	18
Minimally Altered	8	6.9 ± 3 ; 4 to 11	29 ± 7 ; 23 to 45
Moderately Altered	16	5.8 ± 3 ; 1 to 11	37 ± 18 ; 12 to 74
Extensively Altered	8	2 ± 2 ; 0 to 4	43 ± 8 ; 36 to 54
Unrecoverable	0	NA	NA

Table 5.34 Mean, standard deviation, and range of the number and average distance between of residual pools in the Low Gradient subclass

DISTURBANCE GRADIENT	SAMPLE SIZE	NUMBER OF RESIDUAL POOLS IN PAA (MEAN, SD, AND RANGE)	AVERAGE DISTANCE BETWEEN RESIDUAL POOLS (MEAN, SD, RANGE)
Unaltered / Reference Standard	0	NA	NA
Minimally Altered	2	4.5 ; 4 to 5	35.8 ; 21 to 50
Moderately Altered	3	5.3 ± 2 ; 4 to 7	59 ± 20 ; 45 to 73
Extensively Altered	12	1.7 ± 1.9 ; 0 to 7	99.5 ± 114 ; 19 to 180
Unrecoverable	2	0 ; 0 to 0	0 ; 0 to 0

Table 5.35 Scaling for the High gradient subclass

MEASUREMENT CONDITION FOR $V_{RESIDPOOL}$

INDEX

a. Number of residual pools in the PAA is ≥ 12 and the average distance between them is ≤ 30 ft and	1.00
b. No evidence of human alteration of the residual pools.	
a. Number of residual pools in the PAA is ≥ 12 and the average distance between them is > 30 ft but ≤ 150 ft, and	0.75
b. Some evidence of human alteration of the residual pools (<i>e.g.</i> stacking of rocks for swimming or for minor and temporary enhancement of fish habitat; informal hiking trails among pools, <i>etc.</i>) is observable.	
a. Number of residual pools in the PAA is ≥ 5 but < 12 and the average distance between them is ≤ 50 ft and	0.50
b. Evidence of human alteration of the residual pools via manipulation of the channel bed or banks (<i>e.g.</i> some channel straightening, clearing or smoothing of the channel banks for vegetation control) is observable.	
a. Number of residual pools in the PAA is ≥ 5 but < 12 and the average distance between them is > 50 ft but ≤ 150 ft and	0.25
b. Evidence of human alteration of the residual pools via manipulation of the channel bed or banks (<i>e.g.</i> some channel straightening or installation of non-hardened rip-rap in the channel bed or on channel banks; in-channel grade control structures, post and pole bank control structures, <i>etc.</i>) is observable.	
a. Number of residual pools in the PAA is ≤ 4 or the average distance between pools is > 150 ft and	0.10
b. Variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , channel bed graded to remove vegetation; vegetation cleared and channel bed and banks trampled due to heavy grazing by domestic livestock; channel straightened, but not hardened for developed park, crop or orchard production, urban or suburban development).	
a. Number of residual pools in the PAA is ≤ 4 or the average distance between pools is > 150 ft and	0.00
b. Variable is neither recoverable nor sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , concrete trapezoidal channels, hardened rip-rap on both channel banks and hardened channel bottom, parking lot in channel, box culvert throughout PAA, road throughout PAA, <i>etc.</i>) .	

Table 5.36 Scaling for the Medium gradient subclass

MEASUREMENT CONDITION FOR $V_{RESIDPOOL}$	INDEX
a. Number of residual pools in the PAA is ≥ 10 and the average distance between them is ≤ 50 ft, and	1.00
b. No evidence of human alteration of the residual pools.	
a. Number of residual pools in the PAA is ≥ 10 and the average distance between them is > 50 ft but ≤ 150 ft, and	0.75
b. Some evidence of human alteration of the residual pools (<i>e.g.</i> stacking of rocks for swimming or for minor and temporary enhancement of fish habitat; informal hiking trails among pools, <i>etc.</i>) is observable.	
a. Number of residual pools in the PAA is ≥ 2 but < 10 and	0.50
b. Average distance between them is ≤ 50 ft (<i>e.g.</i> some channel straightening, clearing or smoothing of the channel banks for vegetation control).	
a. Number of residual pools in the PAA is ≥ 2 but < 10 and	0.25
b. Average distance between them is > 50 ft but ≤ 150 ft (<i>e.g.</i> some channel straightening or installation of non-hardened rip-rap in the channel bed or on channel banks; in-channel grade control structures, post and pole bank control structures, <i>etc.</i>).	
a. Number of residual pools in the PAA is < 2 or the average distance between pools is > 150 ft and	0.10
b. Variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , channel bed graded to remove vegetation; vegetation cleared and channel bed and banks trampled due to heavy grazing by domestic livestock; channel straightened, but not hardened for developed park, crop or orchard production, urban or suburban development).	
a. Number of residual pools in the PAA is < 2 or the average distance between pools is > 150 ft and	0.00
b. Variable is neither recoverable nor sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , concrete trapezoidal channels, hardened rip-rap on both channel banks and hardened channel bottom, parking lot in channel, box culvert throughout PAA road throughout PAA, <i>etc.</i>).	

Table 5.37 Scaling for the Low gradient subclass

MEASUREMENT CONDITION FOR $V_{RESIDPOOL}$	INDEX
a. Number of residual pools in the PAA is ≥ 5 and	1.00
b. Average distance between them is ≤ 50 ft, and there is no evidence of human alteration of the residual pools.	
a. Number of residual pools in the PAA is ≥ 5 and the average distance between them is > 50 ft but ≤ 150 ft, and	0.75
b. Some evidence of human alteration of the residual pools (<i>e.g.</i> stacking of rocks for swimming or for minor and temporary enhancement of fish habitat; informal hiking trails among pools, <i>etc.</i>) is observable.	
a. Number of residual pools in the PAA is ≥ 2 but < 5 and	0.50
b. Average distance between them is ≤ 50 ft (<i>e.g.</i> some channel straightening, clearing or smoothing of the channel banks for vegetation control).	
a. Number of residual pools in the PAA is ≥ 2 but < 5 and	0.25
b. Average distance between them is > 50 ft but ≤ 150 ft (<i>e.g.</i> some channel straightening or installation of non-hardened rip-rap in the channel bed or on channel banks; in-channel grade control structures, post and pole bank control structures, <i>etc.</i>).	
a. Number of residual pools in the PAA is < 2 or the average distance between pools is > 150 ft and	0.10
b. Variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , channel bed graded to remove vegetation; vegetation cleared and channel bed and banks trampled due to heavy grazing by domestic livestock; channel straightened, but not hardened for developed park, crop or orchard production, urban or suburban development).	
a. Number of residual pools in the PAA is < 2 or the average distance between pools is > 150 ft and	0.00
b. Variable is neither recoverable nor sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , concrete trapezoidal channels, hardened rip-rap on both channel banks and hardened channel bottom, parking lot in channel, box culvert throughout PAA, road throughout PAA, <i>etc.</i>).	

Table 5.38 Scaling for High, Medium, and Low Gradient Subclasses

MEASUREMENT CONDITION FOR V_{SED}	INDEX
Sources and/or amount of sediment delivery and deposition into waters/wetlands and into associated county setbacks (buffers) within the PAA is unaltered by human activities.	1.00
Sources and/or amount of sediment delivery and deposition into waters/wetlands and into associated county setbacks (buffers) within the PAA is currently unaltered by limited human activities (<i>e.g.</i> , light livestock grazing; very low density [Ag 100 county zoning] housing, small, paved roads, <i>etc.</i>)	0.75
Sources and/or amount of sediment delivery and deposition into waters/wetlands and into associated county setbacks (buffers) within the PAA is altered by human activities (<i>e.g.</i> clearing of vegetation, well managed agriculture with "best management practices" in place and maintained; hiking trails; low density housing - RR 5 county zoning)	0.50
a. Direct observation of input of sediment to water/wetland portions of the PAA from up gradient sources, or	0.25
b. Sources and/or amount of sediment delivery and deposition into waters/wetlands and into associated county setbacks (buffers) within the PAA are significantly altered by human activities (<i>e.g.</i> , extensive clearing of vegetation; high intensity and poorly manage agriculture with no "best management practices" in place; construction activities; grading or dredging; unpaved roads; suburban housing densities at 1 house/acre, <i>etc.</i>).	
a. Direct observation of accumulation of sediment in the water/wetland portions of the PAA from up gradient sources, or	0.10
b. Sources and/or amount of sediment delivery and deposition into waters/wetlands and into associated County setbacks (buffers) within the PAA are significantly altered by either:	
1. Filling of the channel bed and/or bank with engineered, hardened, impervious materials (<i>e.g.</i> , concrete trapezoids, weirs, grade control structures, housing densities of 4 houses/acre, <i>etc.</i>), or	
2. Prevention of sediment movement to the PAA through the use of structures (<i>e.g.</i> , sediment accumulations behind post and wire structures), and	
c. The variable is recoverable to reference standard conditions and sustainable through natural processes, if the existing land use is discontinued and no restoration measures are applied.	
a. Sources and/or the amount of sediment delivery and deposition into waters/wetlands within the PAA are significantly altered due to the presence of hardened engineered structures (within the PAA and/or up or down gradient) that are specifically designed and maintained to alter and permanently control the amount and rate of sediment delivery to or through the PAA (<i>e.g.</i> debris basins), and	0.00
b. Variable is not recoverable to reference standard conditions and not sustainable through natural processes, if the existing land use is discontinued and no restoration measures are applied.	

Table 5.39 Mean, standard deviation and range of the average canopy overhang and the percent canopy coverage for High and Medium gradient subclasses

LAND USE GRADIENT	SAMPLE SIZE	SHADE INDEX (MEAN, SD, RANGE)
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Unaltered / Reference Standard	4	18 ± 19.9 ; 5 to 48
Minimally Altered	10	9.8 ± 6.1 ; 0 to 22
Moderately Altered	16	9.9 ± 10.9 ; 0 to 30
Extensively Altered	8	3.2 ± 3.5 ; 0 to 10.5
Unrecoverable	0	0

Table 5.40 Mean, standard deviation and range of the average canopy overhang and the percent canopy coverage for Low Gradient subclass

LAND USE GRADIENT	SAMPLE SIZE	SHADE INDEX (MEAN, SD, RANGE)
Unaltered / Reference Standard	0	0
Minimally Altered	2	18.1 ± 3.6 ; 16 to 21
Moderately Altered	3	2.0 ± 2.9 ; 0 to 5.5
Extensively Altered	10	2.2 ± 4.3 ; 0 to 13
Unrecoverable	2	0

Table 5.41 Scaling for High and Medium Gradient Subclasses

MEASUREMENT CONDITION FOR V_{SHADE}	INDEX
Shade index is ≥ 30 .	1.00
Shade index is ≥ 20 and < 30 .	0.75
Shade index is ≥ 10 and < 20 .	0.50
Shade index is ≥ 1 and < 10 .	0.25
a. Shade index is 0 and	0.10
b. Variable is recoverable and sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied.	
a. Shade index is 0 and	0.00
b. Variable is not recoverable and not sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied.	

Table 5.42 Scaling for the Low Gradient Subclass

MEASUREMENT CONDITION FOR V_{SHADE}	INDEX
Shade index is ≥ 15 .	1.00
Shade index is ≥ 10 and < 15 .	0.75
Shade index is ≥ 5 and < 10 .	0.50
Shade index is ≥ 1 and < 5 .	0.25
a. Shade index is 0 and	0.10
b. Variable is recoverable and sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied.	
a. Shade index is 0 and	0.00
b. Variable is not recoverable and not sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied.	

Table 5.43 Mean, standard deviation and range of percent cover for shrubs within all subclasses

DISTURBANCE GRADIENT	SAMPLE SIZE	PERCENT COVER OF SHRUBS (MEAN, SD, RANGE)
Unaltered / Reference Standard	4	9.25 ± 8.29 ; 3.00 to 20.50
Minimally Altered	13	15.25 ± 12.09 ; 0.0 to 38.0
Moderately Altered	18	22.21 ± 16.67 ; 3.0 to 63
Extensively Altered	20	19.65 ± 14.33 ; 0 to 38
Unrecoverable	2	0 ; 0 to 0

Table 5.44 Scaling for High, Medium, and Low gradient subclasses

MEASUREMENT CONDITION FOR $V_{SHRUBCC}$	INDEX
a. Average shrub canopy cover > 3% and ≤ 10%, and	1.00
b. Vegetation is unaltered by human activities.	
a. Average shrub canopy cover > 3% and < 10%, and	0.75
b. Vegetation in the 50 ft or 100 ft buffer is altered by human activities (<i>e.g.</i> , partial clearing of the buffer vegetation by grazing of domestic livestock, crop production, parks, urban/suburban development, flood control access, <i>etc.</i>).	
a. Average shrub canopy cover ≥ 10% but < 30%, and	0.50
b. Vegetation in the 50 ft or 100 ft buffer is altered by human activities (<i>e.g.</i> , partial clearing of the buffer vegetation by grazing of domestic livestock, crop production, parks, urban/suburban development, flood control access, <i>etc.</i>).	
a. Average shrub canopy cover ≤ 3%, and	0.25
b. Vegetation is recently altered (within the last 5 years) by human activities, or	
c. Average shrub canopy cover ≥ 30%.	
a. Average shrub canopy cover is 0% due to human activities that prevent the establishment of vegetation (<i>e.g.</i> , concrete trapezoidal channel, parking lot, box culvert, roads, <i>etc.</i>), and	0.10
b. Variable is recoverable and sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied.	
a. Average shrub canopy cover is 0% due to human activities that prevent the establishment of vegetation (<i>e.g.</i> , concrete trapezoidal channel, parking lot, box culvert, roads, <i>etc.</i>) and	0.00
b. Variable is neither recoverable nor sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied.	

Table 5.45 Mean, standard deviation, and ranges for snag density and basal area for all three subclasses

DISTURBANCE GRADIENT	SAMPLE SIZE	SNAG BASAL AREA (MEAN, SD, RANGE)
Unaltered / Reference Standard	4	31± 31 ; 0 to 68
Minimally Altered	13	21± 26 ; 0 to 67
Moderately Altered	18	120± 3006 ; 0 to 1216
Extensively Altered	20	39 ± 94 ; 0 to 319
Unrecoverable	2	0 ; 0 to 0

Table 5.46 Scaling for High, Medium, and Low Gradient Subclasses

MEASUREMENT CONDITION FOR V_{SNAG}	INDEX
a. Snag basal area ≥ 40 but ≤ 80 ft ² /acre and	1.00
b. Tree mortality resulting in snag formation is not due to human activities.	
a. Snag basal area ≥ 10 but < 40 ft ² /acre and	0.75
b. Tree mortality resulting in snag formation is not due to human activities.	
a. Snag basal area ≥ 10 but < 40 ft ² /acre or > 150 ft ² /acre and	0.50
b. Tree mortality resulting in snag formation is due to human activities (<i>e.g.</i> , groundwater extraction, herbicide drift, water impoundments, girdling, site preparation for crop production/development, <i>etc.</i>).	
a. Snag basal area < 10 but > 0 ft ² /acre or > 300 ft ² /acre and	0.25
b. Tree mortality resulting in snag formation is due to human activities (<i>e.g.</i> , groundwater extraction, water impoundments, girdling, site preparation for crop production/development, <i>etc.</i>).	
a. Snag basal area is 0 ft ² /acre and	0.10
b. The variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , golf course, orchard, park, <i>etc.</i>).	
a. Snag basal area is 0 ft ² /acre and	0.00
b. The variable is neither recoverable nor sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , water impoundment, concrete structures, roads, parking lots, <i>etc.</i>).	

Table 5.47 Scaling for High and Medium Gradient Subclasses

MEASUREMENT OR CONDITION FOR $V_{SOILINT}$	INDEX
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- a. Soil profile is weakly to moderately developed (*i.e.* different horizons are discernable), intact and entirely undisturbed by human activities (*e.g.* roads, debris basins, agriculture). Typically the soil profile has a weakly developed A, and in some cases a weak Bw horizon, some structure within the upper part, and a moist color value **and** 1.00
- b. Chroma ≤ 3 in the upper part. The soil particle size class is generally loamy skeletal or sandy skeletal.
- a. Soil profile is intact and undisturbed, but human activities **and** 0.75
- b. Disturbance have occurred in the project assessment area, which at some point in time may affect the integrity or stability of the soil profile (*i.e.*, may diminish organic carbon content, soil surface structure, infiltration, structural integrity of the channel bank, or lead to erosion).
- Soil profile is present but perturbed by human activities. The soil surface horizon is impacted (*i.e.* diminished structure, thickness, infiltration, and/or organic carbon content) as a result of human activity and disturbances. The soil horizons are generally intact and have some degree of vegetative cover. 0.50
- a. Soil profile is no longer entirely present (intact) and is disturbed by human activities. The surface horizon is removed or buried by human-induced activities **and** 0.25
- b. Subsurface horizon(s) are either buried, or exposed, altered, (*e.g.*, disturbance by roads, debris basins, construction,), and are subject to continued deterioration as a result of human activities. Soil structure is weak or absent and organic carbon content is diminished (*e.g.* moist value and chroma > 3).
- a. Soil profile is no longer entirely present (intact) **and** 0.10
- b. Significantly disturbed by human activities. The surface horizon is removed by human-induced activities and the subsurface horizon(s) are exposed, highly eroded, and subject to failure or continued erosion and deterioration as a result of human activities (*e.g.*, disturbance by roads, construction, or agriculture). Soil structure is weak or absent and organic carbon content is greatly diminished or absent (*e.g.*, moist value and chroma $\gg 3$, little to no root biomass). The soil profile is recoverable and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied.
- a. Soil profile is no longer present (*i.e.*, is unrecognizable) as a result of human activities and disturbances. The surface and subsurface horizons are generally absent due to removal **or** 0.00
- b. burial as a result of human activities (*e.g.* the placement of fill, roads, construction, debris basins, revetments, concrete weirs or trapezoids). Soil structure is absent, organic carbon content is low or absent (*e.g.* moist value and chroma $\gg 3$, no root biomass), and the soil profile is neither recoverable nor sustainable through natural processes, if the existing land use is discontinued and no restoration measures are applied.

Table 5.48 Scaling for the Low Gradient Subclass

MEASUREMENT OR CONDITION FOR $V_{SOILINT}$	INDEX
a. Soil profile is intact and entirely undisturbed by human activities. Typically the soil profile has an A, Bw or Bg, and/or Cg horizon(s) and a moist color value and	1.00
b. chroma ≤ 3 in the upper part. A soil particle size class of loamy (or finer) is generally present.	
a. Soil profile is intact and undisturbed, but	0.75
b. human activities and disturbance have occurred in the project assessment area which, at some point in time, may affect the integrity of the soil profile (<i>i.e.</i> , may diminish organic carbon content, surface structure, porosity, and infiltration).	
Soil profile is present but perturbed by human activities. The soil surface horizon is impacted (diminished structure, thickness, infiltration, and/or organic carbon content) as a result of human activity and disturbances (<i>e.g.</i> , compaction, light erosion). Soil horizons are generally intact and have some degree of vegetative cover.	0.50
a. Soil profile is no longer entirely present (intact) and is noticeably disturbed by human activities. The surface horizon is buried or	0.25
b. Removed by human-induced activities and the subsurface horizon is either buried, or exposed and subject to erosion and/or compaction most of the time (<i>e.g.</i> , repeatedly tilled fallow field, construction site), and is usually diminished in structure, hydraulic conductivity, and organic carbon content (<i>e.g.</i> , moist value and chroma > 3 , little root biomass).	
a. Soil profile is no longer entirely present (intact) and is noticeably disturbed by human activities. The surface horizon is buried or	0.10
b. Removed by human-induced activities and the subsurface horizon(s) are either buried, or exposed, partially removed (<i>e.g.</i> , decreased in thickness), and highly subject to deterioration through continued erosion and/or compaction. Soil structure is weak or absent and organic carbon content is greatly diminished or absent (<i>e.g.</i> , moist value <u>and</u> chroma $\gg 3$, little to no root biomass). The soil profile is recoverable and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied.	
a. Soil profile is no longer present (<i>i.e.</i> , is unrecognizable) as a result of human activities and disturbances. The surface and subsurface horizons are generally absent due to removal or	0.00
b. complete burial by material associated with human activities (<i>e.g.</i> the placement of fill, rip-rap, revetments, fenced cobble/stone-banks, concrete trapezoids). Soil structure is absent, infiltration is extremely slow to non-existent, organic carbon content is extremely low or absent, and the soil profile is neither recoverable nor sustainable through natural processes, if the existing land use is discontinued and no restoration measures are applied.	

Table 5.49 Mean, standard deviation, and ranges the average number of strata for High, Medium and Low gradient subclasses

DISTURBANCE GRADIENT	SAMPLE SIZE	AVERAGE NUMBER OF STRATA (MEAN, SD, RANGE)
Unaltered / Reference Standard	4	1.81 ± 0.23 ; 1.65 to 2.15
Minimally Altered	13	1.90 ± 0.36 ; 1.55 to 2.35
Moderately Altered	18	1.99 ± 0.46 ; 1.20 to 2.65
Extensively Altered	20	1.49 ± 0.52 ; 0.50 to 2.60
Unrecoverable	2	0.70 + 0.92 ; 0.05 to 1.35

Table 5.50 Scaling for High, Medium, and Low gradient subclasses

MEASUREMENT CONDITION FOR V_{STRATA}	INDEX
a. Average number of strata ≥ 2.0 and	1.00
b. Vegetation in the 50 ft or 100 ft buffer is unaltered by human activities.	
a. Average number of strata ≥ 2.0 and	0.75
b. Vegetation in the 50 ft or 100 ft buffer is moderately altered by human activities (<i>e.g.</i> , partial clearing of the buffer vegetation by grazing of domestic livestock, or by clearing for crop production, undeveloped parks, urban/suburban development, flood control access, <i>etc.</i>).	
a. Average number of strata is < 2.0 but ≥ 1 and	0.50
b. Vegetation in the 50 ft or 100 ft buffer is moderately altered by human activities (<i>e.g.</i> , partial clearing of the buffer vegetation by grazing of domestic livestock, crop production, undeveloped parks, urban/suburban development, flood control access, <i>etc.</i>)	
a. Average number of strata is < 2.0 but ≥ 1 and	0.25
b. Vegetation in the 50 ft or 100 ft buffer is altered by human activities (<i>e.g.</i> , extensive clearing of the buffer vegetation by grazing of domestic livestock, crop production, developed parks, urban/suburban development, flood control access, <i>etc.</i>)	
The average number of strata < 1.0 . The variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , site cleared through heavy grazing of domestic livestock, developed park, and crop production).	0.10
The average number of strata < 1.0 . The variable is neither recoverable nor sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , concrete trapezoidal channel, parking lot, box culvert, roads, <i>etc.</i>)	0.00

Table 5.51 Scaling for High, Medium, and Low Gradient Subclasses

MEASUREMENT CONDITION FOR V_{SURFIN}	INDEX
Surface hydraulic connections into the PAA from the adjacent landscape are unaltered by human activities. No manipulations of the surface hydraulic connections leading to, or within the PAA are present.	1.00
Limited alteration of the natural surface hydraulic connections evident (<i>e.g.</i> , fire and farm road crossings; agricultural or low density [1 house/100 acres] residential runoff directed to natural, ungraded tributaries via light grading).	0.75
a. Surface hydraulic connections into the PAA from the adjacent landscape have been altered by human activity (<i>e.g.</i> , agricultural ditches or swales; inputs from low [1 house/10 acres] to moderate [1 house/5 acres] density residential areas or open space parks or urban inputs), and	0.50
b. Surface hydraulic connections are achieved through a combination of natural tributaries and non-hardened engineered structures (<i>e.g.</i> , through unlined ditches or swales).	
a. Surface hydraulic connections are altered by moderate to intense human activity, and	0.25
b. Surface hydraulic connections are achieved principally through hardened engineered structures (<i>e.g.</i> , culverts, buried pipes, lined ditches, sheet flow over concrete or asphalt) from areas of moderate density residential (<i>i.e.</i> , 1 house/five acres) and/or service industry installations (<i>e.g.</i> , malls, parking lots, <i>etc.</i>)	
a. Surface hydraulic connections into the PAA from the adjacent landscape have been significantly altered by human activity (<i>e.g.</i> , agricultural, high density urban or industrial inputs); and	0.10
b. Surface hydraulic connections into the PAA are achieved through engineered structures that drain runoff from urban or industrial portions of the landscape proximate to the PAA; and	
c. The variable is somewhat recoverable to reference standard conditions and sustainable through natural processes, if the existing land use is discontinued and no restoration measures are applied.	
a. Surface hydraulic connections into the PAA from adjacent portions of the landscape have been significantly altered by human activity (<i>e.g.</i> , agricultural, high density urban or industrial inputs); and	0.00
b. Surface hydraulic connections into the PAA are achieved through engineered structures that drain runoff from urban or industrial portions of the landscape proximate to the PAA. These structures could not be removed without extensive re-engineering to address substantial threats to public safety, therefore	
c. The variable is not recoverable to reference standard conditions and not sustainable through natural processes, if the existing land use is discontinued and no restoration measures are applied.	

Table 5.52 Mean, standard deviation, and range of total tree basal area for the High gradient subclass

<u>DISTURBANCE GRADIENT</u>	<u>SAMPLE SIZE</u>	<u>TOTAL TREE BASAL AREA (MEAN, SD, RANGE)</u>
Unaltered / Reference Standard	3	121.7 ± 43.7 ; 85 to 170
Minimally Altered	2	97.5 ± 45.9 ; 65 to 130
Moderately Altered	0	N/A
Extensively Altered	0	N/A
Unrecoverable	0	N/A

Table 6.53 Mean, standard deviation, and range of total tree basal area for the Medium gradient subclass

<u>DISTURBANCE GRADIENT</u>	<u>SAMPLE SIZE</u>	<u>TOTAL TREE BASAL AREA (MEAN, SD, RANGE)</u>
Unaltered / Reference Standard	1	90
Minimally Altered	8	138 ± 98 ; 0 to 300
Moderately Altered	16	98 ± 41 ; 30 to 140
Extensively Altered	8	83 ± 76 ; 0 to 240
Unrecoverable	0	N/A

Table 5.54 Mean, standard deviation and range of total tree basal area for Low gradient subclass

<u>DISTURBANCE GRADIENT</u>	<u>SAMPLE SIZE</u>	<u>TOTAL TREE BASAL AREA (MEAN, SD, RANGE)</u>
Unaltered / Reference Standard	0	NA
Minimally Altered	2	50 ± 35.4 ; 25 to 75
Moderately Altered	3	35 ± 13 ; 25 to 50
Extensively Altered	12	17.5 ± 15.5 ; 0 to 40
Unrecoverable	2	25 ± 35.4 ; 0 to 50

Table 5.55 Scaling for the High gradient subclass

MEASUREMENT CONDITION FOR V_{TREEBA}	INDEX
a. Tree basal area ≥ 100 ft ² /acre, and	1.00
b. Vegetation in the 50 ft or 100 ft buffer is unaltered by human activity.	
a. Tree basal area ≥ 100 ft ² /acre, and	0.75
b. Vegetation in the 50 ft or 100 ft buffer is altered by human activities (<i>e.g.</i> , partial clearing of the buffer vegetation by grazing of domestic livestock, or by clearing for crop production, undeveloped parks, urban/suburban development, flood control access, <i>etc.</i>).	
a. Tree basal area ≥ 65 ft ² /acre but <100 ft ² /acre, and	0.50
b. Vegetation in the 50 ft or 100 ft buffer is altered by human activities (<i>e.g.</i> , partial clearing of the buffer vegetation by grazing of domestic livestock, crop production, undeveloped parks, urban/suburban development, flood control access, <i>etc.</i>)	
a. Tree basal area ≥ 35 ft ² /acre but < 65 ft ² /acre, and	0.25
b. Vegetation in the 50 ft or 100 ft buffer is altered by human activities (<i>e.g.</i> , extensive clearing of the buffer vegetation by grazing of domestic livestock, crop production, developed parks, urban/suburban development, flood control access, <i>etc.</i>)	
a. Tree basal area < 35 ft ² /acre, and	0.10
b. Variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , site cleared through heavy grazing of domestic livestock, developed park, and crop production).	
a. Tree basal area < 35 ft ² /acre, and	0.00
b. Variable is neither recoverable nor sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , concrete ditch, parking lot, box culvert, roads, <i>etc.</i>).	

Table 5.56 Scaling for the Medium gradient subclass

MEASUREMENT CONDITION FOR V_{TREEBA}	INDEX
a. Tree basal area > 70 ft ² /acre, and	1.00
b. Vegetation in the 50 ft or 100 ft buffer is unaltered by human activity.	
a. Tree basal area > 70 ft ² /acre, and	0.75
b. Vegetation in the 50 ft or 100 ft buffer is altered by human activities (<i>e.g.</i> , crop production, parks, urban/suburban development, <i>etc.</i>).	
a. Tree basal area ≥ 35 ft ² /acre but < 70 ft ² /acre, and	0.50
b. Vegetation in the 50 ft or 100 ft buffer is altered by human activities (<i>e.g.</i> , partial clearing of the buffer vegetation by grazing of domestic livestock, crop production, parks, urban/suburban development, flood control access, <i>etc.</i>)	
a. Tree basal area ≥ 10 ft ² /acre but < 35 ft ² /acre, and	0.25
b. Vegetation in the 50 ft or 100 ft buffer is altered by human activities (<i>e.g.</i> , extensive clearing of the buffer vegetation by grazing of domestic livestock, crop production, parks, urban/suburban development, flood control access, <i>etc.</i>)	
a. Tree basal area < 10 ft ² /acre, and	0.10
b. Variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , site cleared through heavy grazing of domestic livestock, developed park, and crop production).	
a. Tree basal area < 10 ft ² /acre, and	0.00
b. Variable is neither recoverable nor sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , concrete trapezoidal channel, parking lot, box culvert, roads, <i>etc.</i>).	

Table 5.57 Scaling for the Low gradient subclass

MEASUREMENT CONDITION FOR V_{TREEBA}	INDEX
a. Tree basal area ≥ 50 ft ² /acre, and	1.00
b. Vegetation in the 50 ft or 100 ft buffer is unaltered by human activity.	
a. Tree basal area > 50 ft ² /acre, and	0.75
b. Vegetation in the 50 ft or 100 ft buffer is altered by human activities (<i>e.g.</i> , partial clearing of the buffer vegetation by grazing of domestic livestock, or by clearing for crop production, undeveloped parks, urban/suburban development, flood control access, <i>etc.</i>).	
a. Tree basal area ≥ 25 ft ² /acre but < 50 ft ² /acre, and	0.50
b. Vegetation in the 50 ft or 100 ft buffer is altered by human activities (<i>e.g.</i> , partial clearing of the buffer vegetation by grazing of domestic livestock, crop production, undeveloped parks, urban/suburban development, flood control access, <i>etc.</i>)	
a. Tree basal area ≥ 5 ft ² /acre but < 25 ft ² /acre , and	0.25
b. Vegetation in the 50 ft or 100 ft buffer is altered by human activities (<i>e.g.</i> , extensive clearing of the buffer vegetation by grazing of domestic livestock, crop production, developed parks, urban/suburban development, flood control access, <i>etc.</i>)	
a. Tree basal area < 5 ft ² /acre. and	0.10
b. Variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , site cleared through heavy grazing of domestic livestock, developed park, and crop production).	
a. Tree basal area < 5 ft ² /acre, and	0.00
b. Variable is neither recoverable nor sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , concrete ditch, parking lot, box culvert, roads, <i>etc.</i>)	

Table 5.58 Mean, standard deviation, and range of percent canopy cover for trees within the High and Medium gradient subclasses

<u>DISTURBANCE GRADIENT</u>	<u>SAMPLE SIZE</u>	<u>PERCENT CANOPY COVER OF TREES (MEAN, SD, RANGE)</u>
Unaltered / Reference Standard	4	47 ± 37 ; 0 to 85.5
Minimally Altered	10	40 ± 25 ; 0 to 85.5
Moderately Altered	16	52 ± 26 ; 10.5 to 85.5
Extensively Altered	8	29 ± 32 ; 0 to 85.5
Unrecoverable	0	N/A

Table 5.59 Mean, standard deviation and range of percent canopy cover for trees within the Low gradient subclass

<u>DISTURBANCE GRADIENT</u>	<u>SAMPLE SIZE</u>	<u>PERCENT CANOPY COVER OF TREES (MEAN, SD, RANGE)</u>
Unaltered / Reference Standard	0	NA
Minimally Altered	2	62 ± 34 ; 38 to 85.5
Moderately Altered	3	24 ± 19 ; 10.5 to 38
Extensively Altered	12	15 ± 23 ; 0 to 85.5
Unrecoverable	2	31 ± 45 ; 0 to 63

Table 5.60 Scaling for High and Medium gradient subclasses

MEASUREMENT CONDITION FOR V_{TREECC}	INDEX
a. Average tree canopy cover $\geq 80\%$ and	1.00
b. Vegetation within the PAA is unaltered.	
a. Average tree canopy cover $< 80\%$ and $\geq 40\%$ and	0.75
b. Vegetation in the 50 ft or 100 ft buffer is unaltered by human activities.	
a. Average tree canopy cover $< 80\%$ but $\geq 40\%$ and	0.50
b. Vegetation in the 50 ft or 100 ft buffer is altered by human activities (<i>e.g.</i> , partial clearing of the buffer vegetation by grazing of domestic livestock, crop production, parks, urban/suburban development, flood control access, <i>etc.</i>).	
Average tree canopy cover $< 40\%$ but $\geq 10\%$.	0.25
a. Average tree canopy cover $< 10\%$ and	0.10
b. Variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , site cleared through heavy grazing of domestic livestock, developed park, and crop production).	
a. Average tree canopy cover $< 10\%$ and	0.00
b. Variable is neither recoverable nor sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , concrete trapezoidal channel, parking lot, box culvert, roads, <i>etc.</i>).	

Table 5.61 Scaling for the Low gradient subclass

MEASUREMENT CONDITION FOR V_{TREECC}	INDEX
a. Average tree canopy cover $\geq 50\%$ and	1.00
b. Vegetation within the PAA is unaltered.	
a. Average tree canopy cover $< 50\%$ and $\geq 25\%$ and	0.75
b. Vegetation in the 50 ft or 100 ft buffer is unaltered by human activities.	
a. Average tree canopy cover $< 50\%$ but $\geq 25\%$ and	0.50
b. Vegetation in the 50 ft or 100 ft buffer is altered by human activities (<i>e.g.</i> , partial clearing of the buffer vegetation by grazing of domestic livestock, crop production, parks, urban/suburban development, flood control access, <i>etc.</i>)	
Average tree canopy cover $< 25\%$ but $\geq 5\%$.	0.25
a. Average tree canopy cover $< 5\%$ and	0.10
b. Variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , site cleared through heavy grazing of domestic livestock, developed park, crop production, <i>etc.</i>).	
a. Average tree canopy cover $< 5\%$ and	0.00
b. Variable is neither recoverable nor sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , concrete trapezoidal channel, parking lot, box culvert, roads, <i>etc.</i>).	

Table 5.62 Mean, standard deviation, and ranges for vine canopy coverage for High, Medium and Low gradient subclasses

DISTURBANCE GRADIENT	SAMPLE SIZE	VINE CANOPY COVERAGE (MEAN, SD, RANGE)
Unaltered / Near Reference Standard	4	56.75 ± 12.5 ; 38 to 64
Minimally Altered	13	45.5 ± 31.1 ; 3 to 85.5
Moderately Altered	18	41.8 ± 27.3 ; 3 to 85.5
Extensively Altered	20	18.55 ± 21.7 ; 0 to 85.5
Unrecoverable	2	0 ; 0 to 0

Table 5.63 Scaling for High, Medium, and Low gradient subclasses

MEASUREMENT CONDITION FOR V_{VINECC}	INDEX
a. Average vine canopy cover $\geq 60\%$ and $\leq 75\%$ and b. Vegetation is unaltered by human activities.	1.00
a. Average vine canopy cover $\geq 40\%$ and $< 60\%$ and b. Vegetation in the 50 ft or 100 ft buffer is altered by human activities (<i>e.g.</i> , partial clearing of the buffer vegetation by grazing of domestic livestock, crop production, parks, urban/suburban development, flood control access, <i>etc.</i>).	0.75
a. Average vine canopy cover $\geq 20\%$ but $< 40\%$ or b. Average vine canopy cover $> 75\%$ and c. Vegetation in the 50 ft or 100 ft buffer is altered by human activities (<i>e.g.</i> , partial clearing of the buffer vegetation by grazing of domestic livestock, crop production, parks, urban/suburban development, flood control access, <i>etc.</i>).	0.50
a. Average vine canopy cover $\geq 5\%$ but $< 20\%$ or b. Average vine canopy cover $> 75\%$ and the vegetation in the 50 ft or 100 ft buffer is extensively altered by human activities (<i>e.g.</i> , partial clearing of the buffer vegetation by grazing of domestic livestock, crop production, parks, urban/suburban development, flood control access, <i>etc.</i>).	0.25
a. Average vine canopy cover is $< 5\%$ and b. Variable is recoverable to reference standard conditions and sustainable through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , site cleared through heavy grazing of domestic livestock, developed park, and crop production).	0.10
a. Average vine canopy cover is $< 5\%$ and b. Variable is neither recoverable nor sustainable to reference standard conditions through natural processes if the existing land use is discontinued and no restoration measures are applied (<i>e.g.</i> , concrete trapezoidal channel, parking lot, box culvert, roads, <i>etc.</i>).	0.00