



Shrubsteppe habitat in Benton County, 2025

FINAL DRAFT Benton County Shrubsteppe Mitigation Program Description

September 24, 2026 Version

Program Purpose and Need

The Growth Management Act (the GMA) establishes no net loss (NNL) of ecological functions and values as a fundamental requirement for local land use planning. WAC 365-190-080(1) states:

"Counties and cities required or opting to plan under the [GMA] must consider the definitions and guidelines in this chapter when designating critical areas and when preparing development regulations that protect all functions and values of critical areas to ensure **no net loss of ecological functions and values.**"

The County and cities in Benton County, consistent with the GMA, are required to mitigate impacts from removal or degradation of shrubsteppe habitat when developed. Per the Washington Department of Fish and Wildlife (WDFW), shrubsteppe is¹:

"a nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs. Although Big Sagebrush is the most widespread shrubsteppe shrub, other dominant (or co-dominant) shrubs include Antelope Bitterbrush, Threetip Sagebrush, Scabland Sagebrush, and Dwarf Sagebrush. Dominant bunchgrasses include (but are not limited to) Idaho Fescue, Bluebunch Wheatgrass, Sandberg Bluegrass, Thurber's Needlegrass, and Needle-and-Thread. Sites can also have a layer of algae, mosses, or lichens. In areas with greater precipitation or on soils with higher moisture-holding capacity, shrubsteppe can also support a dense layer of forbs (i.e., broadleaf herbaceous flora). Shrubsteppe contains various habitat features, including diverse topography, riparian areas, and canyons. Another important component is habitat quality (i.e., degree to which a tract resembles a site potential natural community), which may be influenced by soil condition and erosion; and the distribution, coverage, and vigor of native shrubs, forbs, and grasses. At more disturbed sites, non-natives such as Cheatgrass or Crested Wheatgrass may be co-dominant species. Fire disturbance is an ecological component of shrubsteppe. Shrubsteppe disturbed by fire may lack the aforementioned habitat components during periods of post-fire recovery."

If mitigation of shrubsteppe impacts cannot be accomplished onsite then offsite, compensatory mitigation is required. Additionally, the US Department of Energy and Pacific Northwest National Laboratory (PNNL) may also have mitigation needs for development in north Richland and the adjoining southern portion of the Hanford Nuclear Reservation.

In recent years, several different approaches for addressing shrubsteppe mitigation requirements offsite have been utilized in Benton County, including payments for the acquisition of mitigation lands to WDFW, developers seeking out and purchasing their own mitigation properties, and more recently, the cities of Kennewick and Richland, and PNNL contracting with the Benton

¹ WDFW Priority Habitats and Species List;
<https://wdfw.wa.gov/sites/default/files/publications/00165/wdfw00165.pdf>

Conservation District (Benton CD) to secure mitigation lands either through conservation easement or land acquisition. Mitigation required under these efforts has varied.

In light of this recent history, Benton County recognized the need for regional consistency for shrubsteppe mitigation and assigned White Bluffs Consulting and AC Geo, the consultant team leads for the County's 2026 Comprehensive Plan and development regulations update, to complete the following activities as part of this process:

- Forecast mitigation needs within the County, organized by each city, its respective UGA and the unincorporated area of the County
- Evaluate shrubsteppe habitat quantity and quality in Benton County
- Identify landowners of potential mitigation properties for conservation
- Investigate organizations (e.g. land trust) might be interested in partnering with the County and perpetually holding mitigation lands
- Identify options for a more regional and consistent mitigation solution to support expected development in the County for at least the next 20 years.
- Develop a draft and final program that describes a consistent regional approach for identifying and applying mitigation requirements, tailored to conditions in Benton County based on best available science
- Support coordination with the cities, WDFW, Benton CD and others during program development, to ensure the program has been thoroughly vetted with these partners and supported.

Demand Projections for Mitigation Land for Next 20 Years

Each city, the County, and PNNL have identified areas with associated acreages that they expect to be developed over the next 20 years (through 2046). These areas were intersected with shrubsteppe data sets to identify gross acres that may require mitigation for this time period, as summarized in Table 1.

Table 1 – Twenty-Year Shrubsteppe Acreage Impact Estimate by Jurisdiction

Jurisdictions	City	UGA	Total	Percent of Total
Benton City	7	3	10	0.16%
Prosser	103	6	109	1.77%
West Richland	134.0	0.4	134.4	2.16%
Richland	954	47	1,001	16.08%
Kennewick	1,076	6	1,082	17.38%
Benton County	—	—	3,889	62.47%
Grand Total	2,274.0	62.4	6,225	100%

The acreages in Table 1 provide a high end estimate of shrubsteppe impacts, since some impacts are expected to be avoided on-site and shrubsteppe extent may be overestimated in the PHS dataset. Using the estimated acres of shrubsteppe impact in each jurisdiction, further projections were made based on the quality and spatial priority of shrubsteppe in areas that are expected to be developed, as informed by Benton CD model of habitat quality, as described above. Estimates are expected to be reviewed and updated by the County and cities approximately every 5 years.

Developing the Technical Basis for the Mitigation Program

The mitigation program is built on a dual framework that evaluates both the **habitat quality** (ecological functions) and the **spatial priority** (conservation values) of shrubsteppe habitat in Benton County. This framework relies on several key datasets to evaluate both potential impacts to shrubsteppe and potential mitigation properties. The key datasets include:

- Shrubsteppe quality model developed by the Benton Conservation District
- WDFW PHS Shrubsteppe Habitats and Biodiversity Areas and Corridors
- WSRRI Xeric Habitat Spatial Priority Data
- Shrubsteppe prioritization model developed by the Benton Conservation District

Shrubsteppe Biodiversity Potential Model to Evaluate Shrubsteppe Quality

Staff from the Benton CD developed the Shrubsteppe Biodiversity Potential (SSBP) model to provide a landscape-scale indication of shrubsteppe habitat quality, ecological function, and resilience. The model integrates LANDFIRE fuel models; Multi-Resolution Land Characteristics (MRLC) Rangeland Condition, Monitoring, Assessment and Projection) (RCMAP) fractional-cover data for annual and perennial herbaceous vegetation, sagebrush, other shrubs, trees, bare ground, and litter; and the Washington Department of Natural Resources Ecological Integrity Assessment framework for upland ecosystems. It also incorporates WDFW species-specific occurrences, PHS shrubsteppe and eastside steppe habitat, Columbia Plateau Biodiversity Areas and Corridors, WSRRI Xeric and Mesic landscape priorities, Arid Lands Initiative cores and linkages, conservation and public-access priorities, agricultural land-use and field-boundary data, possible CRP and fallow lands, parcels, and urban growth boundaries. Model development also incorporated Benton Conservation District staff knowledge of known high-quality shrubsteppe and field-based ground-truthing of mapped conditions.

The model provides an initial County- and city-scale assessment of habitat condition and potential restoration or conservation opportunity. Site- or parcel-specific conditions must still be verified through field evaluation by a qualified professional. Model results are used with WSRRI and other spatial-priority information to identify mitigation opportunities that combine habitat quality with landscape importance, including locations within Core Areas, Growth Opportunity Areas, Corridors, and other habitat areas.

Washington Shrubsteppe Restoration and Resilience Initiative (WSRRI) Spatial Priority Data

The Washington Shrubsteppe Restoration and Resilience Initiative (WSRRI) provides spatial data to guide habitat protection, restoration, and investment. Its strategy focuses on protecting high-quality core habitat, expanding those cores into adjacent areas, and maintaining connections between them. This analysis relies primarily on the WSRRI Dry (Xeric) ecosystem dataset, which identifies priority areas within sagebrush and perennial grassland habitats. WSRRI also includes separate spatial priorities for Wet (Mesic) ecosystems and Greater Sage-grouse habitat. Within each of these three targets, WSRRI classifies Xeric habitats into four spatial designations:

- **Core Areas:** Large, high-quality, intact habitat blocks essential for long-term conservation and ecological resilience.
- **Growth Opportunity Areas (GOAs):** Moderately degraded habitat with high restoration potential, typically adjacent to Core Areas.
- **Corridors:** Areas that facilitate wildlife movement and genetic exchange between Cores and GOAs, helping to maintain ecological connectivity.
- **Other:** Habitat outside of the above designations — often more isolated or degraded, but still ecologically valuable.

This spatial hierarchy is used to determine the relative conservation value of both impacted areas and mitigation areas. In Benton County, the dry (xeric) ecosystem layers are used for analysis of shrubsteppe impacts and prioritization of restoration properties, while the mesic and sage grouse data may be used in a supplemental context.

WDFW Priority Habitats and Species (PHS) Shrubsteppe

The PHS shrubsteppe data provides a general view of where shrubsteppe habitats are likely located. While this is not a precise survey of shrubsteppe presence/absence, it provides a planning tool used in land use decisions to flag areas that require a site-specific evaluation. PHS data is a primary tool used by land use planners in reviewing the potential impacts of proposed developments on priority habitats, such as shrubsteppe. PHS shrubsteppe data was used to identify spatial extent of shrubsteppe habitat within each jurisdiction in Benton County. The PHS shrubsteppe areas included both "Presumptive Shrubsteppe" and "Shrubsteppe" areas.

Additionally, the WDFW Priority Habitats and Species (PHS) dataset identifies Biodiversity Areas and Corridors (BACs), which highlight regionally important intact landscapes that support core habitat and wildlife movement. BACs are also used in combination with WSRRI to determine spatial priority of shrubsteppe impacts.

20-Year Forecast of Potential Impacts for Each Jurisdiction

The analysis used the latest PHS shrubsteppe dataset available as of September 2025 to inventory the total acres of shrubsteppe that could potentially be impacted by future development. Potential impact acreage was calculated based on current land use designations within Benton County and its cities. The analysis included lands within city limits and Urban Growth Areas (UGAs), as well as Rural Community Centers and lands designated Heavy Industrial, Light Industrial, or RL-5 in unincorporated Benton County. The PHS shrubsteppe dataset was then intersected with the Benton County WSRRI/BAC datasets to characterize the full potential impact area within each jurisdiction and countywide. Results were organized by the four WSRRI categories and by "Other PHS Shrubsteppe," representing PHS-mapped shrubsteppe that does not overlap a WSRRI/BAC category, as shown in Table 2 and Figures 1 and 2.

Over the next 20 years, approximately 6,226 acres of shrubsteppe could be impacted by forecasted development, with 1,528 acres of potential impact over the next 5- years. These figures provide a high end estimate of potential impacts because the WDFW PHS shrubsteppe data tends to overestimate shrubsteppe extent, and a portion of potential shrubsteppe impacts would typically be avoided on-site. The summary also shows that approximately 79% of the forecasted shrubsteppe impacts occur within "WSRRI Other" or "Other PHS Shrubsteppe".

Table 2: Forecast Shrubsteppe Impacts by Jurisdiction & WSRRI Xeric Spatial Priority Area/PHS Biodiversity Areas & Corridors

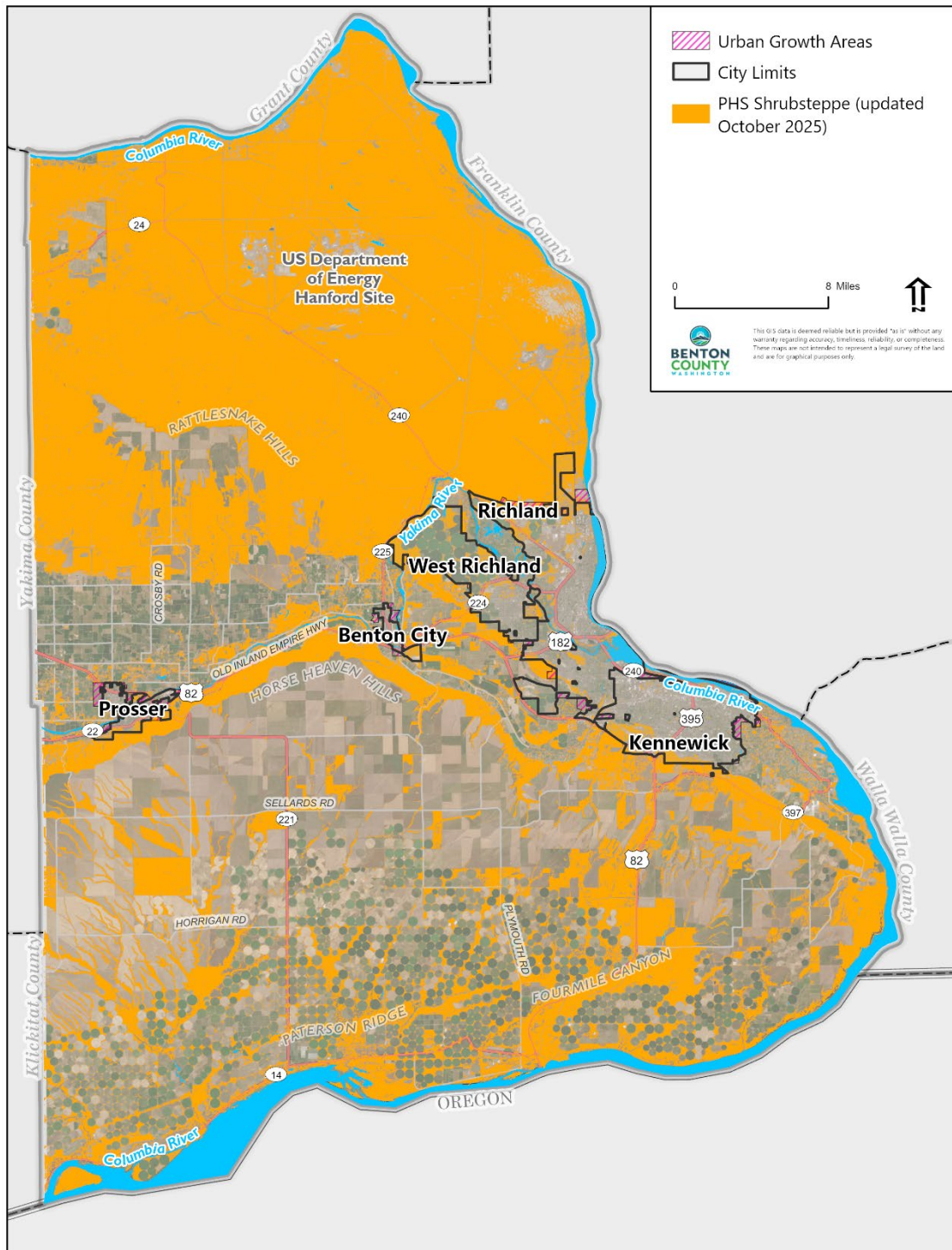
Jurisdictions	20-Year Impacts (Acres)	5-Year Impacts (Acres)	Percent
Benton City (City & UGA)	10	2.50	0.16%
Other PHS Shrubsteppe	10	2.50	0.16%
Prosser (City & UGA)	109	27.50	1.75%
WSRRI/BAC Corridor	21	5.25	0.34%
WSRRI Other habitat	53	13.25	0.85%
Other PHS Shrubsteppe	35	9.00	0.56%
West Richland (City & UGA)	134	5.00	2.16%
Other PHS Shrubsteppe	134	5.00	2.16%
Richland (City & UGA)	1,001	250.00	16.08%
WSRRI/BAC Corridor	218	54.50	3.50%
WSRRI Other habitat	165	41.25	2.65%
Other PHS Shrubsteppe	618	154.25	9.93%
Kennewick (City & UGA)	1,082	270.75	17.38%
WSRRI/BAC Corridor	2	0.50	0.03%
WSRRI Other habitat	667	166.75	10.71%
Other PHS Shrubsteppe	413	103.50	6.63%
Unincorporated Benton County	3,889	972.25	62.47%

WSRRI/BAC Core Area	241	60.25	3.87%
WSRRI/BAC Corridor	815	203.75	13.09%
WSRRI Growth Opportunity Area	42	10.50	0.67%
WSRRI Other habitat	1,194	298.50	19.18%
Other PHS Shrubsteppe	1,597	399.25	25.65%
Grand Total	6,225	1,528	100.00%

NOTES:

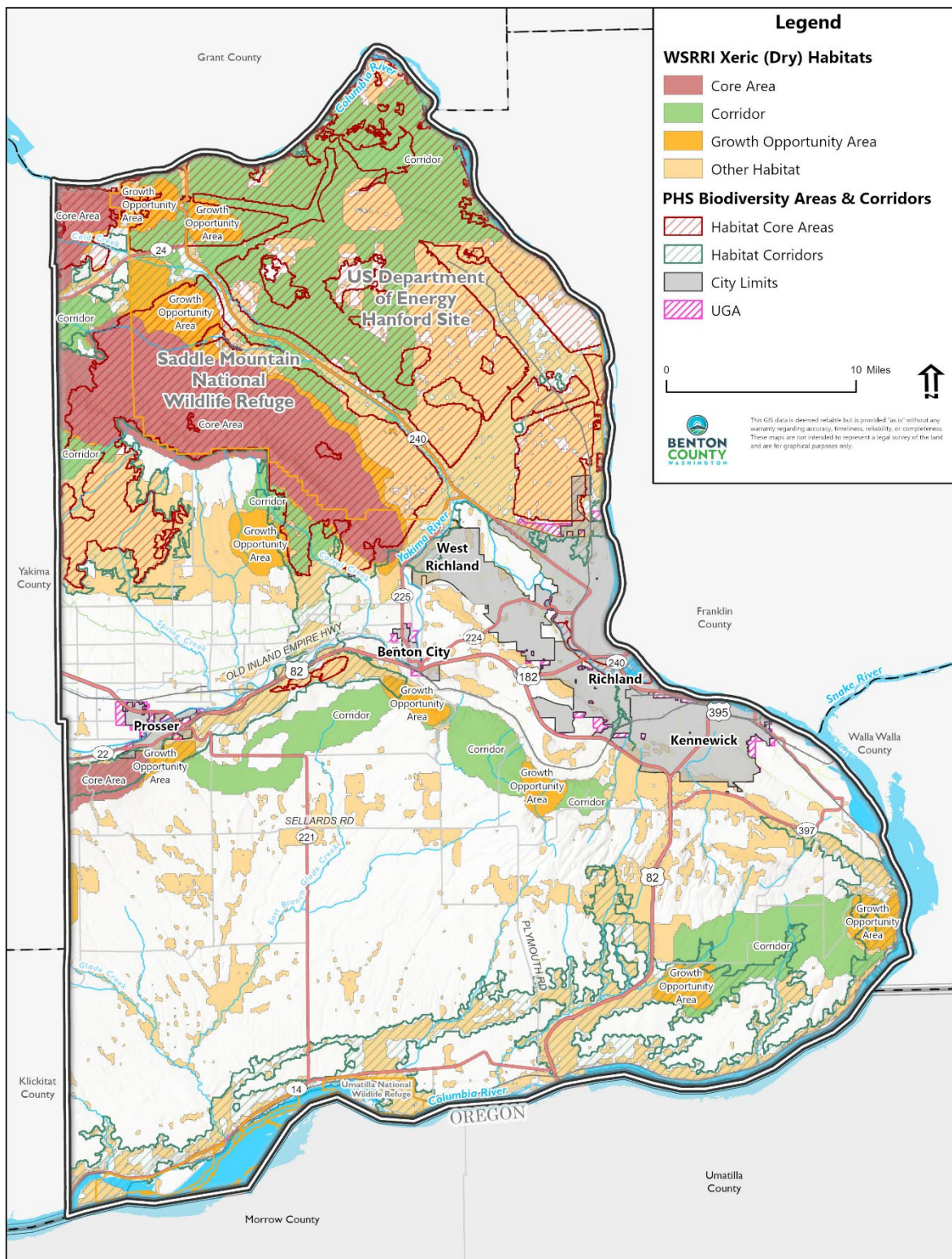
1. Totals include both PHS "Shrubsteppe" and "Presumptive Shrubsteppe"
2. "Other PHS Shrubsteppe" is shrubsteppe that does not fall within one of the WSRRI or PHS BAC spatial priority areas.

Figure 1: WDFW PHS Shrubsteppe



Mapped shrubsteppe extent provides a generalized estimate of shrubsteppe area. Some areas have already been developed or have other landcover types.

Figure 2: Shrubsteppe Spatial Habitat Area (PHS and WSRI)



To provide an initial indication of the quality of shrubsteppe habitat areas that could be impacted by future development, the Benton CD shrubsteppe habitat quality model was intersected with the PHS and WSRRI shrubsteppe data sets. Habitat quality scores were generalized to range from 1(poor) to 4 (high), with a higher value indicating higher habitat quality/ecological function. A summary of the quality and spatial priority of forecasted shrubsteppe impacts within each jurisdiction is included in Table 3.

Table 3: Shrubsteppe Quality & Spatial Priority– 20 Year Impact Forecast

Jurisdictions	Quality: 1	Moderate 2	Good 3	High 4	Total	%
Benton City (City & UGA)	0.11	0.42	9.47	—	10	0.2%
Other PHS Shrubsteppe	0.11	0.42	9.47	—	10	0.2%
Prosser (City & UGA)	—	27	82	—	109	1.8%
WSRRI Corridor	—	6	15	—	21	0.3%
WSRRI Other habitat	—	11	42	—	53	0.9%
Other PHS Shrubsteppe	—	10	25	—	35	0.6%
West Richland (City & UGA)	3	19	107	5	134	2.2%
Other PHS Shrubsteppe	3	19	107	5	134	2.2%
Kennewick (City & UGA)	5.20	213	783	80.80	1,082	17.4%
WSRRI Corridor	—	1	1	—	2	0.0%
WSRRI Other habitat	0.20	102	513	51.80	667	10.7%
Other PHS Shrubsteppe	5	110	269	29	413	6.6%
Richland (City & UGA)	10.13	158	725	107.87	1,001	16.1%
WSRRI Corridor	0.13	18	169	30.87	218	3.5%
WSRRI Other habitat	—	10	134	21	165	2.7%
Other PHS Shrubsteppe	10	130	422	56	618	9.9%
Benton County	23.13	600	3,122.87	143	3,889	62.5%
WSRRI Core Area	0.13	45	195.87	—	241	3.9%
WSRRI Corridor	4	107	682	22	815	13.1%
WSRRI Growth Opportunity Area	—	5	37	—	42	0.7%
WSRRI Other habitat	3	152	980	59	1,194	19.2%
Other PHS Shrubsteppe	16	291	1,228	62	1,597	25.7%
Grand Total	41.57	1,017.42	4,829.34	336.67	6,225	100.0%
	1%	16%	78%	6%	100%	

Table 4 summarizes the percentage of total forecasted shrubsteppe impacts associated with each combination of habitat quality and spatial priority. These percentages can be used to forecast mitigation needs by multiplying the total acreage of anticipated shrubsteppe impacts for a given period by the percentage assigned to each quality and spatial-priority combination.

Table 4: Overall Shrubsteppe Quality & Spatial Priority of Impacted Habitat

Jurisdictions	Quality: Poor 1	Moderate 2	Good 3	High 4	Grand Total
WSRRI Core Area	-	0.7%	3.1%	-	3.9%
WSRRI Growth Opportunity Area	-	0.1%	0.6%	-	0.7%
WSRRI Corridor	0.1%	2.1%	13.9%	0.9%	17.0%
WSRRI Other habitat	0.1%	4.4%	26.8%	2.1%	33.4%
Other PHS Shrubsteppe	0.5%	9.0%	33.1%	2.4%	45.1%
Grand Total	0.7%	16.3%	77.6%	5.4%	100.0%

Notes:

1. >95% of forecasted shrubsteppe impacts occur within the green highlighted range

Review of Tables 3 and 4 indicates that the majority of forecasted shrubsteppe impacts occur within areas classified as “WSRRI Other” habitat and shrubsteppe areas outside of WSRRI/BAC priority designations. These areas generally represent more fragmented or degraded shrubsteppe relative to WSRRI/BAC Core Areas, Growth Opportunity Areas, and Corridors, though they may still support native vegetation and wildlife.

Approximately 17% of potential impacts occur within WSRRI/BAC Corridors, which represent landscapes that support wildlife movement and ecological connectivity between larger habitat blocks. In most cases, development in these corridor areas is expected to consist of lower-intensity rural or residential development, which may allow for greater opportunities for avoidance, clustering, retention of native vegetation, and other on-site mitigation measures that maintain some level of habitat function and connectivity.

Although many impacts occur in areas classified as “Other” habitat, these lands can still provide important ecological functions, including wildlife movement, seasonal habitat use, and opportunities for habitat restoration. For this reason, the County’s mitigation approach focuses on offsetting impacts through restoration or protection of shrubsteppe habitat in areas with higher ecological value or restoration potential, consistent with the WSRRI spatial prioritization framework.

Mitigation Properties Spatial Priority and Quality Metrics

Potential mitigation parcels were identified and prioritized throughout the County through analysis of various habitat quality and spatial priority metrics using a model developed by the Benton Conservation District. Figure 3 shows the spatial priority and shrubsteppe quality values of potential mitigation properties in the County. Table 5 summarizes countywide potential shrubsteppe mitigation acreage, organized by quality and spatial priority.

Figure 3: Shrubsteppe Mitigation Parcel Prioritization

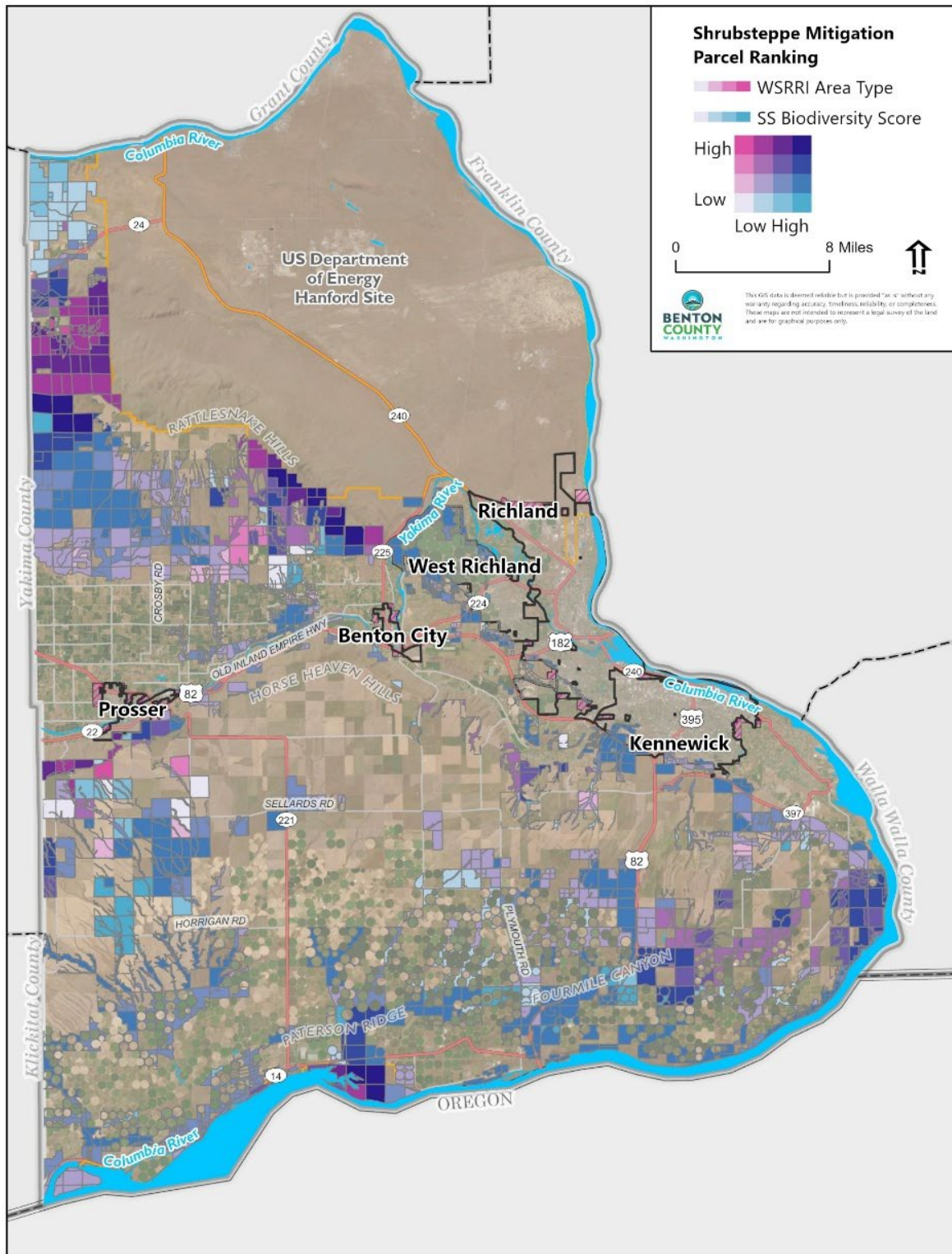


Table 5: Shrubsteppe Quality & Spatial Priority in Potential Mitigation Properties

WSSR/ BAC Spatial Priorities	Quality: Poor	Moderate	Good	High	Unknown	Total
Core Area	220	7,287	16,341	322	105	24,275
Growth Opportunity Area	38	3,497	9,789	311	494	14,130
Corridor	12	2,518	8,554	488	1,282	12,854
Other habitat	81	15,557	60,947	2313	6,316	85,214
Other PHS SS	139	5,115	16,874	451	5,603	28,184
Grand Total	490	33,974	112,505	3,885	13,800	164,656

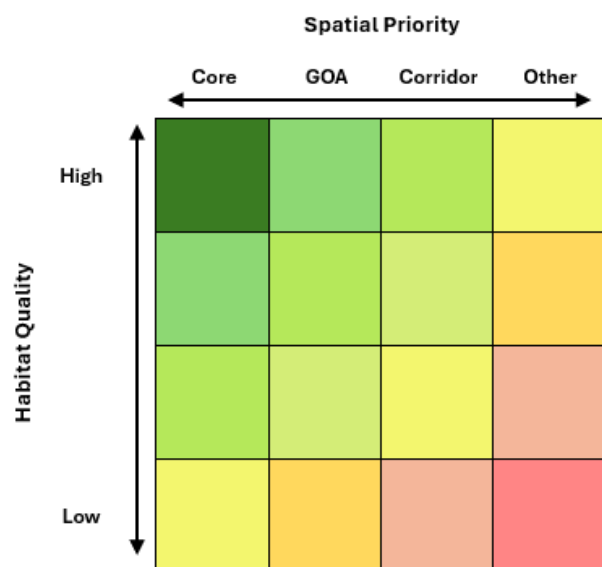
Translating Spatial and Habitat Quality Ratings into Debits & Credits

To establish a consistent and transparent method for evaluating impacts and mitigation, the program uses both **spatial priority** (where the site is located relative to core shrubsteppe and connectivity) and **ecological condition** (how well the site currently functions as shrubsteppe habitat). These two components are combined into a standardized credit/debit system.

- **Spatial Score:** Based on WSRRI ratings (e.g., Core, Connectivity, Restoration Opportunity), which identify the landscape priority of a site.
- **Function Score:** Based on the site's actual ecological condition, confirmed through field assessment. Several accepted methods may be applied:
 - **Ecological Integrity Assessment (EIA)** developed by the Washington Natural Heritage Program (*see Appendix for additional detail*)
 - **BLM AIM** (Assessment, Inventory, and Monitoring) (*see Appendix for additional detail*)
 - **WDFW PHS and other methods used by qualified professionals** for preparing critical area reports, that utilize principles consistent with EIA and BLM AIM but in a more streamlined approach.²
 - **Benton CD Shrubsteppe Quality Model**, with field verification and documentation in critical areas report.

² WDFW is developing a more streamlined shrubsteppe habitat assessment method, similar to a wetland rating form but adapted for shrubsteppe habitat conditions/functions, and this could be available for qualified professionals to use as early as 2027.

Figure 4: General Crediting Concept Based on Quality and Spatial Priority



Notes:

1. Core includes both WSRRI Xeric Core Areas and WDFW PHS Columbia Plateau Regional Biodiversity Areas.
2. Corridors include WSRRI Xeric Corridors and WDFW PHS Columbia Plateau Regional Biodiversity Corridors.

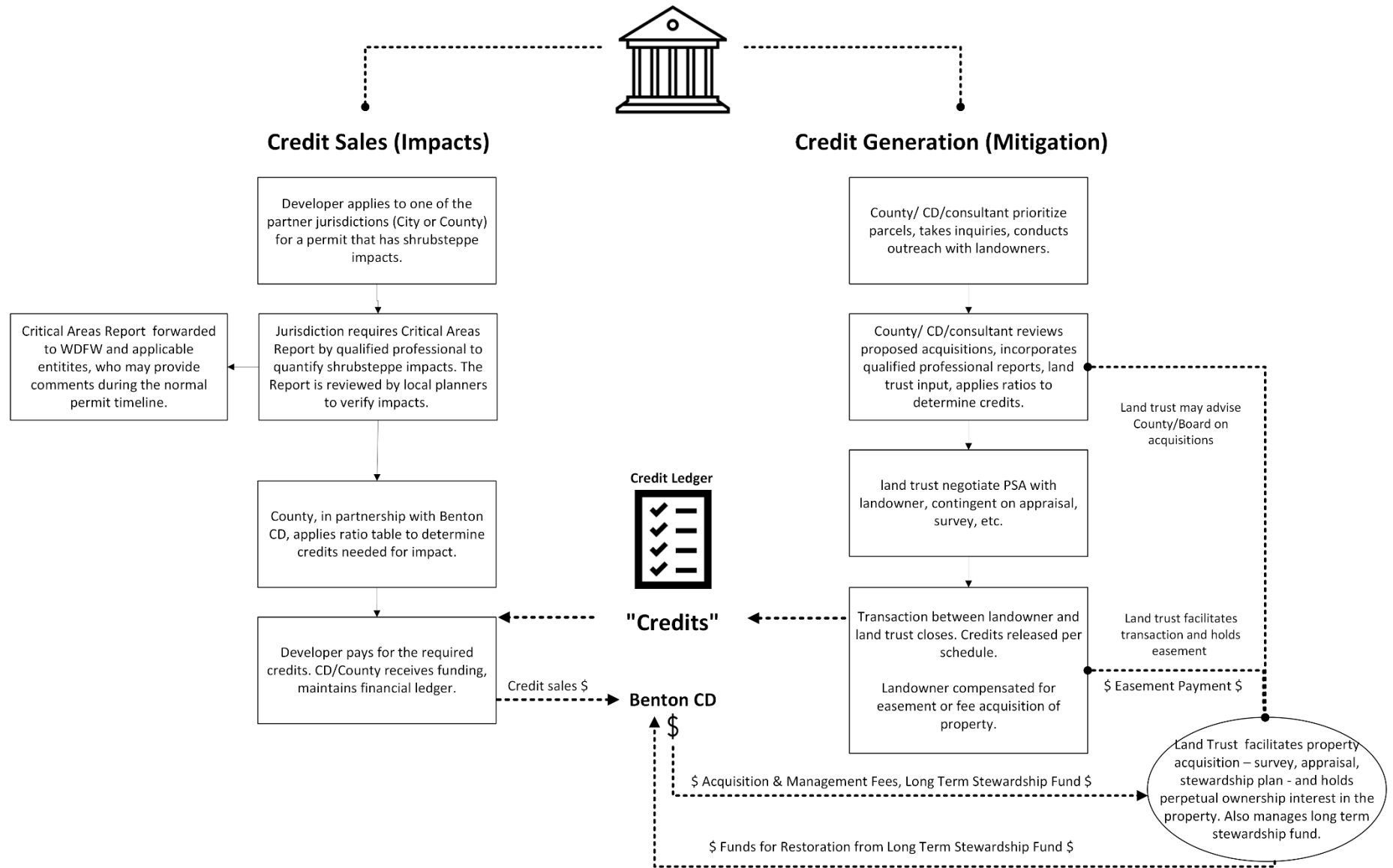
At the time of a development application with a potential to impact shrubsteppe habitat, the permitting jurisdiction (County/city) would provide this program description to the applicant to use in preparing a critical areas (CA) report (to be prepared by a qualified professional). The report would document observed shrubsteppe species and habitat features and confirm shrubsteppe habitat quantity and quality and WSRRI spatial ratings, incorporating applicable WDFW PHS recommendations.³ (Note: This process assumes that the mitigation property and bank has been set up through a coordinated effort among the County, Cities, Benton CD and WDFW that includes mitigation property evaluation, credit establishment and monitoring and restoration strategy determined. Cost per credit would also be known at the time of application. This coordination process among the partners would occur each time a new property is brought into the bank and additional credits established).

Using the critical areas report, the permitting jurisdiction would determine the project's debit obligation and assign the required number of mitigation credits as a permit condition. The applicant would satisfy the obligation by purchasing those credits and providing verification to

³ Threatened or endangered species presence and associated species-specific conditions to avoid or mitigate impacts may require additional permit conditions/requirements beyond shrubsteppe habitat loss mitigation.

the County or city. The applicant would satisfy the obligation by purchasing those credits and providing verification to the County or city.. See Figure 5 for a conceptual diagram of the impact and mitigation crediting process and the examples that follow to illustrate how the process might work.

Figure 5: Process Diagram

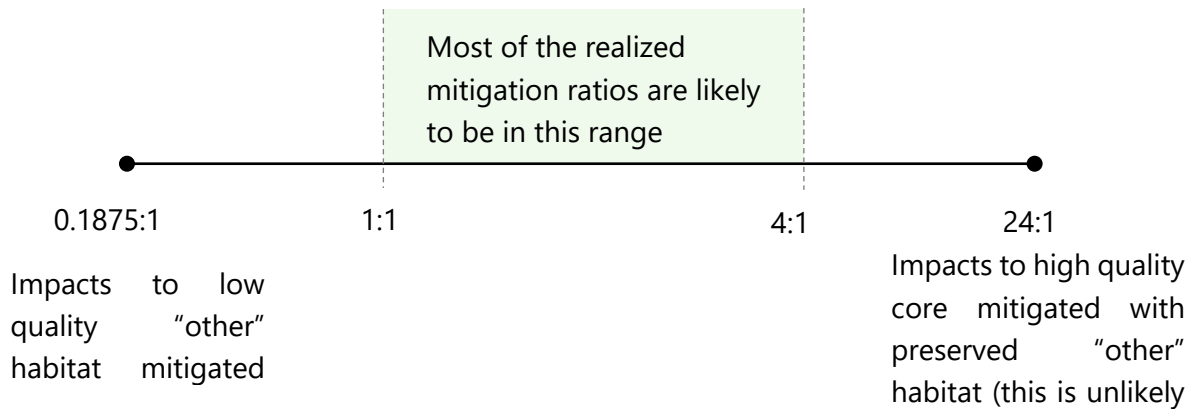


Calculating Impact and Mitigation Credits

Credits and debits are calculated independently based on the multipliers and formulas listed in Tables 6 & 7. An area of impacted shrubsteppe proposed for development is documented for habitat extent, quality and spatial priority through a qualified professional's CA report including associated WSRRI and PHS mapping to determine the appropriate multiplier. Some properties may have a range of quality or even spatial priorities, and these would be separated into sub-areas with varied multipliers applied. The overall process for determining and applying the applicable multipliers is:

1. **Initial screening.** Review PHS mapping, aerial imagery, and other available data to determine whether shrubsteppe may be present.
 2. **Field assessment.** If shrubsteppe is present or reasonably suspected, a qualified professional delineates the habitat and documents its acreage, condition, and relevant features. The assessment should also document other known or observed priority species. However, the credit and debit framework described in this section addresses shrubsteppe habitat impacts only. Any species-specific avoidance, minimization, consultation, or compensatory mitigation requirements would be addressed separately through the applicable critical areas review and agency requirements.
 3. **Assign spatial priority.** Use WSRRI, PHS, and other applicable data to classify each impact area. Areas with different classifications are evaluated separately.
 4. **Assign habitat quality.** Classify each impact area using WDFW guidance, the Ecological Integrity Assessment, BLM AIM, or another scientifically valid method accepted by the County. Depending on the method that is used, qualified professional may need to convert the quality metric to the more general "High – Good – Moderate – Poor" categorization. Suggested conversions of BLM AIM and EIA quality metrics are included in Table 6.
- Calculate impact debits.** Apply the quality and spatial multipliers to each assessment unit and sum the results to determine the total credits required.

The quality/spatial priority driven framework is designed to place greater mitigation obligations on impacts to higher-quality and higher-priority habitat, while directing mitigation toward strategically important sites. Mitigation credits also reflect the type of restoration activity appropriate for the bank property, as established by the baseline habitat quality at the site. The realized ratios resulting from the range from 0.1875:1 to 24:1, with recommended multipliers and ratios adapted from WDFW comments on previous versions of this program description, and Grant County mitigation banking guidance. Based on anticipated impact types and target mitigation properties, most realized ratios are expected to fall between 1:1 and 4:1.



Impact Debit Calculation

For shrubsteppe impacts, acres are multiplied by quality and spatial priority to account for both the ecological condition and landscape value of the habitat being lost. The habitat quality factor is determined via a site assessment using the WDFW PHS (as described in future guidance), BLM, or EIA methods. The spatial priority is determined based on the WSRRI or PHS spatial priority of the habitat. The formula to calculate impact debits would be:

Impact Debits Generated = Impact Acres × Quality Factor × Spatial-Priority Factor

Table 6: Impact and Spatial Priority Multipliers

BLM AIM Departure from Reference	EIA Score	Generalized Habitat Quality	Factor
None	A	High	1.00x
Slight to moderate	B	Good	0.75x
Moderate	C	Moderate	0.50x
Extreme	D	Poor ⁴	0.375x

Spatial priority	Factor
WSRRI/PHS BAC Core Area	4x
WSRRI Growth Opportunity Area	3x
WSRRI/ PHS BAC Corridor	2x
WSRRI Other habitat/not mapped	1x

⁴ An evenly stepped factor would be .25x, however, this was boosted to lift the lower-end mitigation ratios.

Credit (Mitigation) Calculation

For mitigation sites, acres are adjusted based on the type of mitigation activity and the spatial priority of the site. The framework is activity-based because the existing condition of a mitigation site, measured relative to its Natural Range of Variation (NRV), determines the action needed to maintain or improve ecological function. Sites substantially below NRV may require shrubsteppe reestablishment or rehabilitation, while sites at or near NRV may be more appropriate for enhancement, resilience measures, or preservation. This approach ties credit generation to the expected ecological benefit of the proposed action rather than assigning credits based solely on the site's existing quality.

The activity factor reflects the relative level of intervention and ecological uplift associated with reestablishment, rehabilitation, preservation with enhancement and resilience measures, or preservation only. The spatial-priority factor reflects the landscape value of completing mitigation within Core Areas, Growth Opportunity Areas, Corridors, or Other habitat.

The formula for calculating mitigation credits is:

$$\text{Credits Generated} = \text{Mitigation Acres} \div \text{Activity Factor} \times \text{Spatial-Priority Factor}$$

Table 7: Mitigation Activity and Spatial Priority Multipliers

Existing Site Condition	Mitigation activity	Factor
Poor (<60% of NRV)	Reestablishment	2:1
Moderate (60–89% of NRV)	Rehabilitation	3:1
Good - High (≥90% of NRV)	Preservation with enhancement & resilience mechanisms ⁵	4:1
Good – High ≥90% of NRV	Preservation only	6:1

Spatial priority	Factor
WSRRI/PHS BAC Core Area	4x
WSRRI Growth Opportunity Area	3x
WSRRI/PHS BAC Corridor	2x
WSRRI Other habitat/not mapped	1x

⁵ *Preservation with enhancement & resilience mechanisms* refers to preservation through a conservation easement along with long term funding dedicated to restore the property if it is damaged in the future (eg. Wildfire), and other targeted long-term maintenance and resilience actions (eg. Invasive species control). This provides functional lift by increasing the probability that that site functions will exist over time.

Potential Realized Mitigation Ratios

The 16 possible debit classifications and 16 possible credit classifications produce 256 potential ratio combinations, ranging from approximately **24:1** to less than **0.20:1** (neither of these cases is expected to be realized based on the quality of shrubsteppe likely to be impacted and the targeted mitigation sites). Actual realized ratios are expected to fall within a narrower range between 1:1 and 4:1, based on the location of forecasted impacts and prospective mitigation sites. The full range of possible realized mitigation ratios is shown in Appendix C.

5-Year Mitigation Need Based on Forecasted Impacts

Using the 1,528 acres of potential shrubsteppe impacts forecast over the next five years, together with the spatial priority and estimated habitat quality of those impact areas, the County can estimate the total mitigation acreage required under the proposed ratio framework. The most likely mitigation-bank scenarios involve restoration or preservation (with enhancement and long-term resilience measures) within Growth Opportunity Areas or Corridors. The required acres to offset the 1,528 acres of forecasted impacts using each mitigation type are shown below:

Mitigation Scenario	5-Year Mitigation Acres Required
GOA Restoration	1,429 acres
GOA Preservation with enhancement & resilience mechanisms	1,906 acres
Corridor Restoration	2,148 acres
Corridor Preservation with enhancement & resilience mechanisms	2,858 acres

The actual mitigation need is likely to be lower than the estimates shown above. Consistent with mitigation sequencing, a portion of the forecasted impacts are expected to be avoided or minimized through project design and therefore would not require off-site compensatory mitigation. An example of the mitigation credit ledger showing both impacts and mitigation is shown in Appendix C – Mitigation Bank Ledger Example

Rationale for Mitigation Framework and Ratios

The mitigation ratios are structured to meet key ecological and implementation objectives through the following:

- **Assigns greater mitigation obligations to impacts affecting higher value shrubsteppe.** Impacts to higher-quality habitat and areas with greater landscape importance generate more debits, creating an incentive structure that encourages avoidance and minimization of impacts to the most ecologically valuable shrubsteppe.

- **Applies activity-specific ratios that account for the type of mitigation action.** Ratios are calibrated to reflect the expected functional lift and relative ecological value of each action, with greater credit assigned to actions that improve habitat condition and achieve a net ecological benefit.
- **Prioritizes protection of higher-quality habitat in areas of broader ecological significance** (WSRRI & BAC), directing mitigation to locations that provide the greatest regional habitat value, in alignment with State priorities and initiatives such as the Washington Habitat Connectivity Action Plan.
- **Strongly disincentivizes use of non-functional or very poor-quality habitat for mitigation** unless restoration to higher quality occurs, preventing low-value habitat from being used to offset meaningful impacts.
- **Supports transparent and adaptable implementation.** The decoupled framework allows impact areas and mitigation units with different conditions to be evaluated separately and can be updated as WDFW guidance, monitoring results, and banking experience evolve. This maintains transparency and simplicity during program implementation.

Worked Examples

The following worked examples illustrate how impact and mitigation would be credited under the proposed framework. Benton County has also developed a mitigation calculator that can be used to perform example calculations.

Example 1 — Debit. A development would impact 10 acres of "Good" quality (EIA Score B) habitat within a WSRRI "Corridor". The formula is $10 \text{ acres} \times 0.75 \text{ ("Good" quality multiplier)} \times 2 \text{ ("Corridor" spatial priority multiplier)} = 15 \text{ credits required}$

Example 2 — Credit. A mitigation project would reestablish 6 acres of "Poor" quality habitat within a WSRRI "Core Area" and restore it to "High" quality. The formula is $6 \text{ acres} \div 2 \text{ (reestablishment ratio)} \times 4 \text{ ("Core Area" spatial-priority multiplier)} = \mathbf{12 \text{ credits generated}}$.

Example 3 — Full transaction. A development would impact 10 acres of "Poor" quality habitat within a WSRRI "Other" area. The formula is $10 \text{ acres} \times 0.375 \text{ ("Poor" quality multiplier)} \times 1 \text{ ("Other" spatial-priority multiplier)} = \mathbf{3.75 \text{ credits required}}$. The impact would be offset by reestablishing 2.5 acres of shrubsteppe within a WSRRI "Core Area." The formula is $2.5 \text{ acres} \div 2 \text{ (reestablishment ratio)} \times 4 \text{ ("Core Area" spatial-priority multiplier)} = \mathbf{5 \text{ credits generated}}$. The mitigation obligation would be satisfied, with **1.25 credits remaining**.

Accounting for Restoration/ Enhancement

Preservation through a conservation easement provides the baseline protection for each mitigation property. Additional credits may be generated through preservation with enhancement, rehabilitation, or reestablishment. The applicable activity will be determined based

on existing site condition, expressed as poor, moderate, good, or high quality, or as the degree of departure from the Natural Range of Variability (NRV), as shown in Table 7.

A restoration and management plan will establish the proposed activities, success criteria, monitoring requirements, adaptive management provisions, and credit-release schedule. This approach ties credit generation to existing condition, the mitigation activity performed and demonstrated functional lift rather than assuming restoration to a uniform reference condition.

Additionally, a long-term stewardship fund will be established for each mitigation property to support ongoing monitoring, maintenance, adaptive management, and response to unforeseen impacts such as wildfire, invasive species, vandalism, or fence damage. The fund will be capitalized as part of the mitigation cost and remain dedicated to maintaining the property's habitat functions and values over time.

Mitigation Credit Ledger

All impacts and mitigation activities within the program are tracked using a centralized debit and credit ledger, which functions as the program's official accounting system. Each recorded entry converts impacted acres into debits with credits applied using the ratios prescribed per Tables 6 and 7. The ledger maintains a running balance of available, pending, and released credits for each mitigation banked property, ensuring transparency and consistency across transactions. Credits are available for purchase by a developer once a conservation easement with restoration plan is in place and total mitigation bank costs for the property, including restoration or enhancement costs are known. Internal to the bank, credits from restoration are released to the bank as described above. This approach allows the program to maintain a clear, auditable record of credits and ensures that all mitigation obligations are properly accounted for over the lifetime of the program. The County has developed a conceptual version of the debit/credit ledger, as illustrated in Appendix C.

Credit Release Staging

Credit release for mitigation is tied to verified conditions. While projects that only involve preservation are discouraged, if they were to occur, they will release 100% of the credits when the transfer of ownership interest closes. Mitigation projects that include restoration activities will have multiple credit release stages tied to the preservation and restoration outcomes. The schedule below outlines the suggested conditions under which credits are released for an acquisition and restoration project, ensuring that credits correspond to measurable outcomes.

Credit Release Schedule:

Stage	Credit Release Condition	Credits Released
1	Conservation easement secured	50%
2	Activity-specific implementation/restoration completed and long-term stewardship fund fully established	25%
3	Follow-up EIA/AIMs/other habitat assessment after 3-5 years shows progress toward quality benchmarks and anticipated functional lift.	25%

Establishing Per Credit Cost

Mitigation credit costs are under development and will be specific to the actual mitigation properties permanently protected and the associated restoration activities. Credit costs will be established prior to this program being launched, which is expected in 2027. Cost factors include land survey, baseline conditions report, conservation easement terms and conditions, restoration plan and implementation, ongoing stewardship, and ongoing administration expenses.

Benton County and Partners, and Mitigation Landholder Roles and Responsibilities

The Benton CD modeling was used to identify high-quality candidate properties and preliminary contact has been made with some landowners regarding potential participation in the program. The County is in discussions with a land trust that would serve as the holder of ownership rights is responsible for ensuring that mitigation properties provide lasting conservation benefits. Ownership rights may be secured through fee-simple acquisition or conservation easements, both of which permanently protect the property and generate mitigation credits for the program. Additional credits may also be secured through rehabilitation and re-establishment of shrubsteppe, which will also require monitoring and maintenance. The land trust organization would partner with the Conservation District for baseline habitat conditions assessment, restoration planning and implementation and potentially other areas of support, as needed. A responsible, accountable, consulted and informed (RACI) matrix was developed to outline the various roles and responsibilities for various program development and implementation efforts, as provided in Appendix B.

Grazing and Other Land Use on Mitigation Properties

Grazing and other vegetation or land management practices may be used as tools to achieve desired conservation outcomes on mitigation properties. Their application should be evaluated in developing the restoration plan and stewardship strategy for the mitigation property and desired management measures to meet habitat function goals.

Mitigation Bank Establishment and Program Management

Discussion is ongoing among partner entities (County/Benton CD/land trust) to determine various roles and responsibilities. Some responsibilities, as described above, are better understood, while others are still being confirmed. Once the results from these discussions are finalized, then they will be documented in an updated version of this program description. The current understanding of roles and responsibilities are summarized in the responsible, accountable, consulted and informed (RACI) matrix was developed to outline the various roles and responsibilities for various program development and implementation efforts, as provided in Appendix C.

Monitoring and Adaptive Management

Because this is a new program that is still under development and brings together new partners, responsibilities, and procedures, adaptive management and ongoing program refinement should be expected. Program participation, implementation costs, administrative procedures, and effectiveness in achieving no net loss of shrubsteppe ecological functions will be monitored and reviewed at least annually in coordination with program partners. This programmatic review will include a comprehensive evaluation of mitigation properties, available and used credits, restoration and stewardship performance, monitoring results, and any emerging implementation issues. Recommended adjustments to ratios, procedures, roles, monitoring requirements, or other program components may be identified and incorporated as appropriate.

The program is also being developed and implemented in advance of WDFW's updated shrubsteppe habitat protection and mitigation guidance due to Growth Management Act deadlines. Additional refinements may therefore be necessary once that guidance and associated management recommendations are finalized.

Monitoring and adaptive management will also be incorporated into the long-term restoration, enhancement, and stewardship of individual mitigation properties. Monitoring results will be used to evaluate whether performance standards are being met and to identify corrective actions or changes in management where needed.

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References

Arid Lands Initiative Spatial Methods Team. (2014). Spatial Conservation Priorities in the Columbia Plateau Ecoregion: Methods and Data Used to Identify Collaborative Conservation Priority Areas for the Arid Lands Initiative. Arid Lands Initiative.

Azerrad, J. M., Divens, K. A., Livingston, M. F., Teske, M. S., Ferguson, H. L., & Davis, J. L. (2011, revised 2020). *Long-Range Planning: Considering the Shrub-Steppe Landscape*. Washington Department of Fish and Wildlife.

Azerrad, J. M., Divens, K. A., Livingston, M. F., Teske, M. S., Ferguson, H. L., & Davis, J. L. (2011, revised 2020). *Management Recommendations for Washington's Priority Habitats: Managing Shrub-Steppe in Developing Landscapes*. Washington Department of Fish and Wildlife.

Azerrad, J. M., Divens, K. A., Livingston, M. F., Teske, M. S., Ferguson, H. L., & Davis, J. L. (2011, revised 2020). *Site-Specific Management: How to Avoid and Minimize Impacts of Development to Shrub-Steppe*. Washington Department of Fish and Wildlife.

Azerrad, J. M., Michalak, J. L., & Johnson, T. P. (2023). *PHS Local Government User Guide: Biodiversity Areas and Corridors Map*. Washington Department of Fish and Wildlife, Habitat Program.

Benton County. (2017). *Benton County Comprehensive Plan*. Benton County, Washington.

Benton County. (2025). Benton County, Washington, 2026 Comprehensive Plan Periodic Update Work Plan. Benton County Community Development Department.

Benton County. (2026). Benton County Comprehensive Plan, Volume II: Technical Appendices. Benton County, Washington.

Benton County. (2026). *Open Space Corridors Memorandum*. Prepared in support of the Benton County 2026 Comprehensive Plan Periodic Update.

Cares, A., & Floyd, B. (2026). *Energy Overlay Zoning Memorandum*. Prepared by AC Geo and White Bluffs Consulting for the Benton County Planning Division.

Folkerts, K. E., Johnson, T. P., & Michalak, J. L. (2025). *PHS Local Government User Guide: Shrubsteppe and Eastside Steppe Map*. Washington Department of Fish and Wildlife, Habitat Program.

Grabowsky, E., Huppert, M., & Ritter, M. (2025). *Guidelines for Utility-Scale Solar and Onshore Wind Energy Development in Washington State*. Washington Department of Fish and Wildlife.

Janowitz, K., & Strittholt, J. R. (2023). Least-Conflict Solar Siting on the Columbia Plateau: A Report to the Washington State Legislature. Washington State University Energy Program.

Michalak, J. L., Kalisz, G. P., Morgan, H. A., DeMay, S. M., Kaszta, Z., Azerrad, J., Bockstiegel, E., Shirk, A., & Cramer, P. (2025). *Washington Habitat Connectivity Action Plan*. Washington Department of Fish and Wildlife and Washington State Department of Transportation.

U.S. Fish and Wildlife Service. (n.d.). *Information for Planning and Consultation*. U.S. Department of the Interior.

Washington Department of Fish and Wildlife. (2009). *Landscape Planning for Washington's Wildlife: Managing for Biodiversity in Developing Areas*. Washington Department of Fish and Wildlife.

Washington Department of Fish and Wildlife. (2023). *PHS Technical Report: Biodiversity Areas and Corridors Map*. Washington Department of Fish and Wildlife, Habitat Program.

Washington Department of Fish and Wildlife. (2023). *Priority Habitats and Species List*. Washington Department of Fish and Wildlife.

Washington Department of Fish and Wildlife. (2024). *Priority Habitats and Species Shrubsteppe Decision Support Tools: Implementation Guidance for Land-Use Planners and VSP Workgroups*. Washington Department of Fish and Wildlife.

Washington Department of Fish and Wildlife. (2025). *Washington's State Wildlife Action Plan: 2025 Update*. Washington Department of Fish and Wildlife.

Washington Department of Fish and Wildlife, Washington State Department of Natural Resources, & Washington State Conservation Commission. (2024). *Washington Shrubsteppe Restoration and Resiliency Initiative: Long-Term Strategy 2024–2054*. Washington Department of Fish and Wildlife.

Washington State University Energy Program & Conservation Biology Institute. (2023). *WA Least Conflict Solar Composite Results*. ArcGIS Online geospatial dataset.

Washington Wildlife Habitat Connectivity Working Group. (2012). *Washington Connected Landscapes Project: Analysis of the Columbia Plateau Ecoregion*. Washington Department of Fish and Wildlife and Washington State Department of Transportation.

Washington Wildlife Habitat Connectivity Working Group. (2013). *Washington Connected Landscapes Project: Columbia Plateau Climate-Gradient Corridors Analysis*. Washington Department of Fish and Wildlife and Washington State Department of Transportation.

Appendix A

Habitat Assessment Methods

Ecological Integrity Assessment

The Ecological Integrity Assessment (EIA), developed by the Washington Natural Heritage Program, provides a science-based method for evaluating habitat condition. It uses a suite of standardized, habitat-specific metrics to assess key ecological attributes (KEAs), including native vegetation composition, invasive species presence, shrub structure, soil and hydrologic function, and vegetation structure and diversity.

Each metric is evaluated independently using a four-tiered rating system, with ratings based on how closely the site conditions align with the Natural Range of Variability (NRV). NRV values are derived from a separate local reference site that represents the best achievable ecological condition for the relevant habitat type. Ranks are converted to numerical values, weighted by ecological significance, and then aggregated to calculate a final ecological integrity score (Table 3). This score is translated into an overall site condition rank, as shown below.

Table. Ecological Integrity Assessment Scoring Framework. This table outlines how individual ranks (A–D) are numerically translated and averaged across Key Ecological Attributes (KEAs) to produce a final EIA score. The final score determines the overall site condition rank, which informs the appropriate mitigation activity. Metric scores are based on alignment with the Natural Range of Variability (NRV) established from a reference site.

Rank	Metric Score	KEA/Final Score
A	5	4.5-5.0
B	4	3.5-4.4
C	3	2.5-3.4
D	1	1.0-2.4

This standardized scoring system allows mitigation sites to be objectively evaluated and compared across landscapes and projects.

BLM AIMs Rating System

The **BLM AIMs Score** is a standardized ecological rating based on the Bureau of Land Management's (BLM) **Assessment, Inventory, and Monitoring (AIM)** strategy. AIM is a framework used across the western U.S. to collect standardized data on the condition of public lands.

This score describes how much a site has departed from its "reference condition," which represents the natural and resilient state of the ecosystem. The score is categorized into descriptive tiers:

- **Near Reference:** The site is functioning as expected with minimal human-caused alterations.
- **Slight Departure:** The site shows minor changes from its reference condition.
- **Moderate Departure:** The site exhibits significant changes in ecological attributes.
- **Extreme Departure:** The site's ecological functions and species composition are severely altered from the reference condition.

WDFW PHS Guidance

WDFW is developing updated guidance that is anticipated to include a simplified shrubsteppe quality-assessment protocol. Once published, that protocol could be incorporated into this framework as an additional County-approved method for assigning Poor, Moderate, Good, or High habitat-quality classifications.

Appendix B

Roles and Responsibilities for Program Administration

Benton County Shrubsteppe Mitigation Program — RACI Chart								
Task / Activity	Benton County	Cities (Kennewick, Richland, etc.)	White Bluffs Consulting / AC Geo	Benton Conservation District (CD)	Land Trust FORTERRA	WDFW	Developer / Applicant	Qualified Professional (General – not per CAO)
Lead program development and coordinate among jurisdictions	A	A	R	C	C	C		
Adopt and update program regulations (Critical Areas Ordinances)	R/A	R/A	C	C		C		
Establish and maintain governance structure	R/A	R/A	C	C	C	C		
Coordinate with WDFW on program design and requirements	A	A	R	C	C	C		
Mitigation properties evaluation	A	I	R	C	C	C		
Update 20-year demand projections every ~5 years	R	R		C		C		

Benton County Shrubsteppe Mitigation Program — RACI Chart

Task / Activity	Benton County	Cities (Kennewick, Richland, etc.)	White Bluffs Consulting / AC Geo	Benton Conservation District (CD)	Land Trust FORTERRA	WDFW	Developer / Applicant	Qualified Professional (General – not per CAO)
Develop and maintain Shrubsteppe Biodiversity Potential (SSBP) model	I	C		R/A		C		
Maintain WSSRI spatial priority data and maps	C	C		C		R/A		
Maintain WDFW PHS shrubsteppe dataset	C	C		I		R/A		
Prioritize and map potential mitigation parcels	R	C		I	C	C		
Maintain centralized mitigation credit ledger	R/A	C		C	C	I		
Require critical areas (CA) report at time of development application	R/A	R/A				I		

Benton County Shrubsteppe Mitigation Program — RACI Chart

Task / Activity	Benton County	Cities (Kennewick, Richland, etc.)	White Bluffs Consulting / AC Geo	Benton Conservation District (CD)	Land Trust FORTERRA	WDFW	Developer / Applicant	Qualified Professional (General – not per CAO)
Prepare Critical Areas / shrubsteppe impact report	I	I				I	A	R
Verify habitat quality and WSSRI spatial ratings in field	I	I				C	A	R
Calculate credits/debits required for development impacts	R/A	R/A				I	I	R
Establish permit conditions specifying mitigation obligation	R/A	R/A				I	I	
Draft generic (non-property specific) Mitigation Banking Instrument (MBI)	C/A	I		I	R			

Benton County Shrubsteppe Mitigation Program — RACI Chart								
Task / Activity	Benton County	Cities (Kennewick, Richland, etc.)	White Bluffs Consulting / AC Geo	Benton Conservation District (CD)	Land Trust FORTERRA	WDFW	Developer / Applicant	Qualified Professional (General – not per CAO)
Draft generic (non-property specific) Conservation Easement (CE)	R	I		C	R/A	C		
Identify and contact potential mitigation landowners	A	I	R	R	C	I/C		
Conduct property appraisal	A	I		C	R			R
Complete survey, Phase I ESA, habitat assessment, and baseline report	A	I		C/R (habitat)	R	C		R
Draft and execute Mitigation Banking Instrument (MBI) / legal documents	C/A	C		C	R	I		

Benton County Shrubsteppe Mitigation Program — RACI Chart

Task / Activity	Benton County	Cities (Kennewick, Richland, etc.)	White Bluffs Consulting / AC Geo	Benton Conservation District (CD)	Land Trust FORTERRA	WDFW	Developer / Applicant	Qualified Professional (General – not per CAO)
Secure conservation easement or fee-simple acquisition	C/A	C		C	R	I		
Pay escrow, title insurance, and transaction costs	R/A	I			C			
Pay CE stewardship or MBI long-term reserve fees	R/A	I		C/R	C			
Release credits upon verified conservation easement / acquisition	R/A	I		I	I	I		
Release credits upon completion of restoration activities	R/A	I		C/R	I	c		R
Release final credits upon habitat quality benchmark verification	A	A		R	I	I		

Benton County Shrubsteppe Mitigation Program — RACI Chart

Task / Activity	Benton County	Cities (Kennewick, Richland, etc.)	White Bluffs Consulting / AC Geo	Benton Conservation District (CD)	Land Trust FORTERRA	WDFW	Developer / Applicant	Qualified Professional (General – not per CAO)
Receive payment for credit purchases (TBD - pending agreement)	C	C		R	I	I	R	
Satisfy mitigation obligation by purchasing credits	C	C		R	I	I	R/A	
Plan and implement restoration/enhancement activities	A	I		R	R	C		R (if needed)
Conduct long-term stewardship of mitigation properties	A	I		C	R	C		
Monitor CE compliance and habitat condition (remote, 4 of 5 yrs)	I	I		C/R (5 yr)	R/A	C		
Manage MBI long-term reserve fund	I	I		C	R/A	I		

Benton County Shrubsteppe Mitigation Program — RACI Chart								
Task / Activity	Benton County	Cities (Kennewick, Richland, etc.)	White Bluffs Consulting / AC Geo	Benton Conservation District (CD)	Land Trust FORTERRA	WDFW	Developer / Applicant	Qualified Professional (General – not per CAO)
Respond to casualty losses on mitigation properties	C/A	I		C	R	C		
Coordinate grazing/land-use practices on mitigation properties (if grazing part of mgmt. plan)	C/A	I		C/R (grazing mgmt.)	R	C		

LEGEND

R — Responsible — does the work	A — Accountable — owns the outcome	C — Consulted — provides input	I — Informed — kept in the loop
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Notes: R/A indicates a single party that is both Responsible and Accountable for a task. Mitigation Review Team composition to be established by Benton County and partner jurisdictions. Credit purchase payment recipient is pending agreement among partner entities. Per-credit cost estimated at \$4,000–\$5,500 (subject to revision). PNNL mitigation (134 acres / 403 required mitigation acres) is administered through separate Benton CD agreements

Appendix C

Realized Mitigation Ratios & Ledger Example

Application of the multipliers listed in Tables 6 and 7 can result in 16 potential impact and mitigation values per acre. This results in 256 potential realized mitigation ratios, as shown below.

Impacts Matrix				
	Core	Goa	Corridor	Other
High	4	3	2	1
Good	3	2.25	1.5	0.75
Moderate	2	1.5	1	0.5
Poor	1.5	1.125	0.75	0.375

Mitigation Matrix				
	Core	Goa	Corridor	Other
Reestablishment	2.00	1.50	1.00	0.50
Rehabilitation	1.33	1.00	0.67	0.33
Preserve & Enhance	1.00	0.75	0.50	0.25
Preserve Only	0.67	0.50	0.33	0.17

Realized Mitigation Ratios Table

Mitigation Activity																
Impact	Core Reest.	Core Restore	Core P&E	Core Preserve Only	GOA Reest.	GOA Restore	GOA P&E	GOA Preserve Only	Corridor Reest.	Corridor Restore	Corr. P&E	Corridor Preserve Only	Other Reest.	Other Restore	Other P&E	Other Preserve Only
Core H	2.00:1	3.00:1	4.00:1	6.00:1	2.67:1	4.00:1	5.33:1	8.00:1	4.00:1	6.00:1	8.00:1	12.00:1	8.00:1	12.00:1	16.00:1	24.00:1
Core G	1.50:1	2.25:1	3.00:1	4.50:1	2.00:1	3.00:1	4.00:1	6.00:1	3.00:1	4.50:1	6.00:1	9.00:1	6.00:1	9.00:1	12.00:1	18.00:1
Core M	1.00:1	1.50:1	2.00:1	3.00:1	1.33:1	2.00:1	2.67:1	4.00:1	2.00:1	3.00:1	4.00:1	6.00:1	4.00:1	6.00:1	8.00:1	12.00:1
Core P	0.75:1	1.13:1	1.50:1	2.25:1	1.00:1	1.50:1	2.00:1	3.00:1	1.50:1	2.25:1	3.00:1	4.50:1	3.00:1	4.50:1	6.00:1	9.00:1
GOA H	1.50:1	2.25:1	3.00:1	4.50:1	2.00:1	3.00:1	4.00:1	6.00:1	3.00:1	4.50:1	6.00:1	9.00:1	6.00:1	9.00:1	12.00:1	18.00:1
GOA G	1.13:1	1.69:1	2.25:1	3.38:1	1.50:1	2.25:1	3.00:1	4.50:1	2.25:1	3.38:1	4.50:1	6.75:1	4.50:1	6.75:1	9.00:1	13.50:1
GOA M	0.75:1	1.13:1	1.50:1	2.25:1	1.00:1	1.50:1	2.00:1	3.00:1	1.50:1	2.25:1	3.00:1	4.50:1	3.00:1	4.50:1	6.00:1	9.00:1
GOA P	0.56:1	0.84:1	1.13:1	1.69:1	0.75:1	1.13:1	1.50:1	2.25:1	1.13:1	1.69:1	2.25:1	3.38:1	2.25:1	3.38:1	4.50:1	6.75:1
Corr H	1.00:1	1.50:1	2.00:1	3.00:1	1.33:1	2.00:1	2.67:1	4.00:1	2.00:1	3.00:1	4.00:1	6.00:1	4.00:1	6.00:1	8.00:1	12.00:1
Corr G	0.75:1	1.13:1	1.50:1	2.25:1	1.00:1	1.50:1	2.00:1	3.00:1	1.50:1	2.25:1	3.00:1	4.50:1	3.00:1	4.50:1	6.00:1	9.00:1
Corr M	0.50:1	0.75:1	1.00:1	1.50:1	0.67:1	1.00:1	1.33:1	2.00:1	1.00:1	1.50:1	2.00:1	3.00:1	2.00:1	3.00:1	4.00:1	6.00:1
Corr P	0.38:1	0.56:1	0.75:1	1.13:1	0.50:1	0.75:1	1.00:1	1.50:1	0.75:1	1.13:1	1.50:1	2.25:1	1.50:1	2.25:1	3.00:1	4.50:1
Othr H	0.50:1	0.75:1	1.00:1	1.50:1	0.67:1	1.00:1	1.33:1	2.00:1	1.00:1	1.50:1	2.00:1	3.00:1	2.00:1	3.00:1	4.00:1	6.00:1
Othr G	0.38:1	0.56:1	0.75:1	1.13:1	0.50:1	0.75:1	1.00:1	1.50:1	0.75:1	1.13:1	1.50:1	2.25:1	1.50:1	2.25:1	3.00:1	4.50:1
Othr M	0.25:1	0.38:1	0.50:1	0.75:1	0.33:1	0.50:1	0.67:1	1.00:1	0.50:1	0.75:1	1.00:1	1.50:1	1.00:1	1.50:1	2.00:1	3.00:1
Othr P	0.1875:1	0.28:1	0.38:1	0.56:1	0.25:1	0.375:1	0.50:1	0.75:1	0.38:1	0.56:1	0.75:1	1.13:1	0.75:1	1.13:1	1.50:1	2.25:1

= bank transactions based on extent of forecasted impacts and planned mitigation properties

Mitigation Bank Ledger Example

IMPACTS IMPACT DEBIT LEDGER						
ID	JURISDICTION	ACRES	PRIORITY	QUALITY	DEBITS	
001	Unincorporated Benton County	11.00	Core	Moderate	22.00	×
002	Unincorporated Benton County	48.13	Core	Good	144.40	×
003	Unincorporated Benton County	1.22	GOA	Moderate	1.83	×
004	Unincorporated Benton County	9.00	GOA	Good	20.25	×
005	Unincorporated Benton County	1.00	Corridor	Poor	0.75	×
006	Unincorporated Benton County	32.39	Corridor	Moderate	32.39	×
007	Unincorporated Benton County	212.85	Corridor	Good	319.27	×
008	Richland	12.98	Corridor	High	25.96	×
009	Richland	9.17	Other	Poor	3.44	×
010	Unincorporated Benton County	205.00	Other	Moderate	102.50	×
011	Unincorporated Benton County	915.42	Other	Good	686.57	×
012	Unincorporated Benton County	69.84	Other	High	69.84	×
TOTAL		1528.00			1429.20	

CREDITS MITIGATION BANK CREDIT LEDGER					
BANK / CREDIT SOURCE	ACRES	SPATIAL PRIORITY	ACTIVITY		
e.g. Fourmile Canyon	0.00	Corridor (x2) ▾	Preservation w/ enr	+ ADD	
SOURCE	ACRES	PRIORITY	ACTIVITY	CREDITS	
P01	1000.00	Corridor	Restore	666.67	×
P02	1600.00	Corridor	Preserve & Enhance	800.00	×
TOTAL	2600.00			1466.67	

MITIGATION BALANCE SUMMARY				SURPLUS	EXPORT CSV
TOTAL DEBITS	TOTAL CREDITS	NET BALANCE	REALIZED RATIO		
1429.20	1466.67	+37.47	1.00:1		
impact acre-equivalents	mitigation acre-equivalents	Balance: +37.47	offset requirement met		

REFERENCE — LOOKUP MATRICES

Quality / Priority	Core	GOA	Corridor	Other
High	4.00	3.00	2.00	1.00
Good	3.00	2.25	1.50	0.75
Moderate	2.00	1.50	1.00	0.50
Poor	1.50	1.125	0.75	0.375

Impact debit matrix (per acre)

Activity / Priority	Core	GOA	Corridor	Other
Reestablish	2.00	1.50	1.00	0.50
Restore	1.33	1.00	0.67	0.33
Preserve & Enhance	1.00	0.75	0.50	0.25
Preserve Only	0.67	0.50	0.33	0.17

Mitigation credit matrix (per acre)