Conservation Agreement and Strategy for Graham's Beardtongue (*Penstemon grahamii*) and White River Beardtongue (*P. scariosus* var. *albifluvis*)

LIVESTOCK GRAZING MANAGEMENT PLAN

Prepared by the Penstemon Conservation Team

State of Utah School and Institutional Trust Lands Administration
Uintah County, Utah
Utah Public Lands Policy Coordination Office
Utah Division of Wildlife Resources
Rio Blanco County, Colorado
Bureau of Land Management
U.S. Fish and Wildlife Service

July 2015

SWCA
ENVIRONMENTAL CONSULTANTS

CONSERVATION AGREEMENT AND STRATEGY FOR GRAHAM'S BEARDTONGUE (*PENSTEMON GRAHAMII*) AND WHITE RIVER BEARDTONGUE (*P. SCARIOSUS* VAR. *ALBIFLUVIS*):

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INTRODUCTION

The monitoring and adaptive management approach prescribed here is intended to guide the development and implementation of this livestock grazing management plan for Graham's beardtongue (*Penstemon grahamii*) and White River beardtongue (*P. scariosus* var. *albifluvis*); see section 6.5 of the *Conservation Agreement and Strategy for Graham's Beardtongue (*Penstemon grahamii*) and White River Beardtongue (*P. scariosus *var.* albifluvis*)* (Penstemon Conservation Team 2014), which is hereafter referred to as the Agreement. Implementation of adaptive management will be the responsibility of the Penstemon Conservation Team. Therefore, the Penstemon Conservation Team anticipates that changes to this plan may be required based on new information as it becomes available.

Background

In July 2014, the U.S. Fish and Wildlife Service (USFWS); the Utah and Colorado Bureau of Land Management (BLM); Uintah County, Utah; Rio Blanco County, Colorado; the Utah School and Institutional Trust Lands Administration; the Utah Division of Wild life Resources; and the Governor's Public Lands Policy Coordination Office finalized the Agreement to address potential threats to Graham's beardtongue and White River beardtongue. As part of the Agreement, the Penstemon Conservation Team is charged with developing a livestock grazing management plan for Graham's or White River beardtongue occurrences and penstemon conservation areas on BLM-managed lands by July 22, 2015.

Livestock grazing has been specifically identified as posing potential threats to the species and their habitats (USFWS 2013a, 2013b; Penstemon Conservation Team 2014); these potential threats and the conservation actions required under the Agreement are summarized in Table 1.

Table 1. Livestock Grazing Threats to Graham's and White River Beardtongues and Associated Conservation Actions

Potential Threat	Conservation Action
Herbivory of all or part of aboveground portion of vegetative portion of plant	Conservation action 19. On federal lands where the species co-occur with livestock grazing during the growing season (April through September), the BLM will develop and implement a mitigation and monitoring plan for each allotment within 1 year of signing this Agreement. If monitoring identifies that livestock grazing is negatively affecting the species, the BLM will immediately adjust livestock management in the allotment to ameliorate those impacts. Short-term adjustments may include construction of temporary drift fences to keep livestock away from occupied habitat, and long-term adjustments may include permanent fencing or modifying the grazing schedule. In any adjustment made to allotments, the authorized officer will include consultation, cooperation and coordination with affected permittees, as stipulated in 43 Code of Federal Regulations 4130.3-3. The conservation team will be consulted as necessary. The conservation team will be apprised of changes and modifications to management of allotments through annual reporting to the conservation team.
Herbivory of all or part of the inflorescence	Conservation action 19
Trampling of plant and habitat	Conservation action 19
Change in community composition	Conservation action 19
Invasive species invasion, spread, and competition	Conservation action 19 Conservation actions 20–24 (Weed Management Plan)
Alteration of soil characteristics	Conservation action 19

Source: Table 4 of the Agreement (Penstemon Conservation Team 2014)

Potential threats to Graham's and White River beardtongues from livestock grazing will be addressed with this plan, in coordination with other conservation actions and management. Specifically, invasive species will be addressed through the implementation of the Penstemon Conservation Team's *Weed Management Plan* (Penstemon Conservation Team 2015), and assessment and monitoring will be coordinated with on-going range-wide monitoring for Graham's and White River beardtongues.

Authority

This livestock grazing management plan was developed and will be implemented collaboratively between authorized BLM range management staff and the Penstemon Conservation Team. Any grazing allotment management adjustments will include consultation, cooperation, and coordination with affected permittees, as stipulated in 43 Code of Federal Regulations 4130.3-3.

Adaptive Management Approach

As part of implementation of the Agreement, the conservation team is required to develop and implement a monitoring and adaptive management program to inform decision making. The monitoring and adaptive management program will coordinate monitoring and management for multiple conservation objectives, including range-wide population monitoring, the *Weed Management Plan* (Penstemon Conservation Team 2015), and this livestock grazing management plan.

Adaptive management bases decision-making on iterative implementation and evaluation of management where effectiveness and outcomes are not known (Herrick et al. 2012). The strategies and recommendations presented here are intended to be implemented in an adaptive management context, with management and monitoring needs adjusted based on *Penstemon* species population responses to management actions. Implementation of adaptive management will be the responsibility of the Penstemon Conservation Team. The Penstemon Conservation Team anticipates that there will be changes to this plan as new information becomes available. An adaptive management approach will allow the Penstemon Conservation Team to recognize and respond to uncertainties in our understanding of sensitive plant species' interactions with livestock management. Adaptive management based on clear management goals and objectives will allow for flexibility in plan implementation for permittees, range managers, and the Penstemon Conservation Team. Implementation will follow the six steps shown in Figure 1.

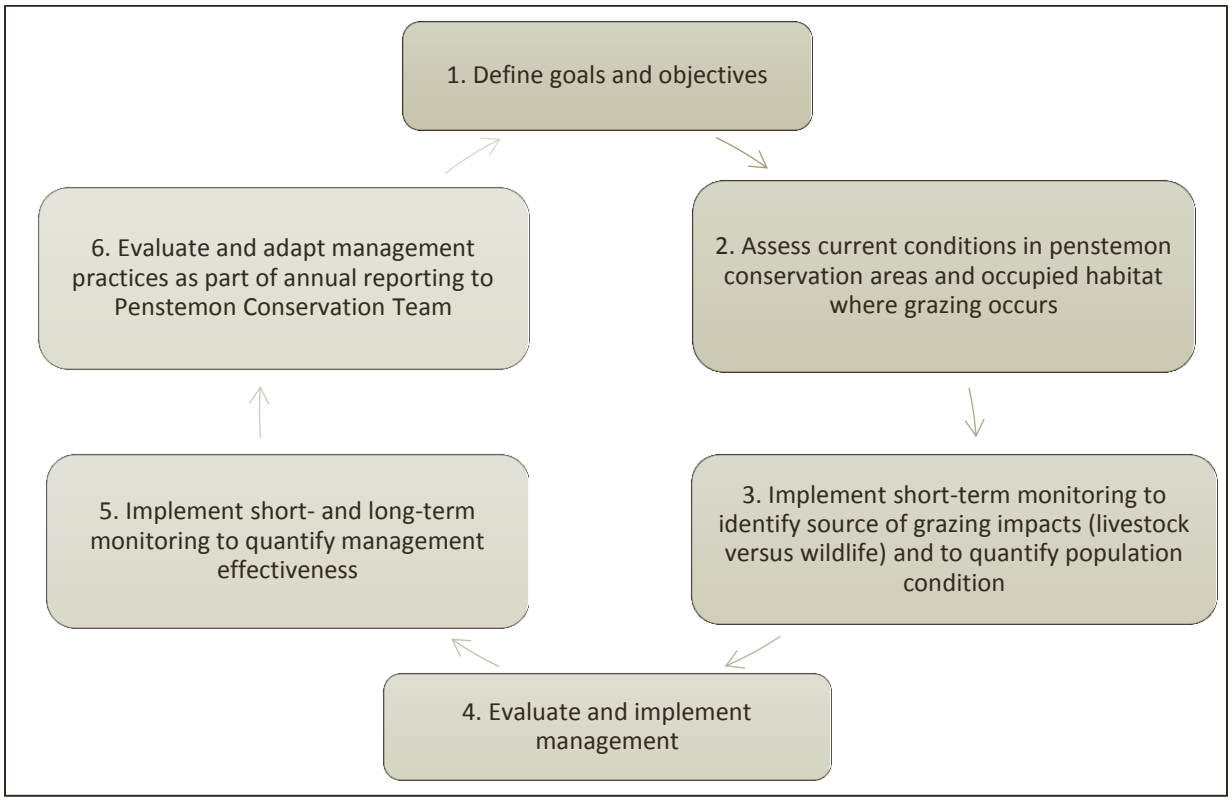

Figure 1. Adaptive management approach for the livestock grazing management plan.

MANAGEMENT PLAN GOALS AND OBJECTIVES

The goals of this livestock management plan are to meet the requirements under the Agreement, identify areas where livestock grazing may be affecting Graham's or White River beardtongues, make management changes to ameliorate the impacts, and monitor the effectiveness of those management actions.

The Penstemon Conservation Team's management objectives under this plan are as follows:

> **Objective 1:** Maintain current population levels of Graham's and White River beardtongues so that populations subjected to grazing do not decrease by more than 10% over 5 years compared to control populations. The population status and habitat conditions in ungrazed control populations will be concurrently monitored so that population declines due to drought or other factors can be identified.
>
> **Objective 2:** Maintain the plant community in Graham's and White River beardtongue habitats so that the total cover and diversity of native plant species in grazed sites do not differ from control sites by more than 10%.

These objectives will be addressed by the Penstemon Conservation Team using a three-step process (Figure 2):

1. **Assess** current conditions in conservation areas (as defined in the Agreement) and occupied habitats where livestock grazing occurs. This step will determine if there are impacts to beardtongue populations, and if those impacts are due to wildlife, feral ungulates, or livestock (see top section of Figure 2).
2. **Monitor** to quantify impacts to conservation areas and occupied habitats associated with grazing from livestock, feral ungulates, and wildlife. Quantitative monitoring will be initiated wherever beardtongue individuals have been impacted by grazing or trampling (see middle section of Figure 2).
3. **Implement** management actions to minimize or eliminate any impacts to beardtongue populations or habitats, and evaluate the effectiveness of management actions. **Adapt** management practices as needed, and report the results of plan implementation, monitoring, and adaptive management to the Penstemon Conservation Team. Management will be implemented iteratively starting with the most easily implementable actions (see bottom section of Figure 2).

The protocols described in this plan do not imply that livestock grazing is affecting Graham's or White River beardtongues. Monitoring data and field observations must be gathered and evaluated to identify beardtongue habitat conditions. Where livestock grazing is causing loss of or damage to populations or habitats, changes to livestock herding or trailing, range improvements, season of use, or other active management may be implemented.

Impacts from wildlife or feral ungulates will be evaluated as part of assessment and will be monitored, but implementation of any management for wildlife or feral ungulates is outside the scope of this plan. Any need to manage wildlife or feral ungulates will be addressed by the Penstemon Conservation Team as part of implementing the Agreement.

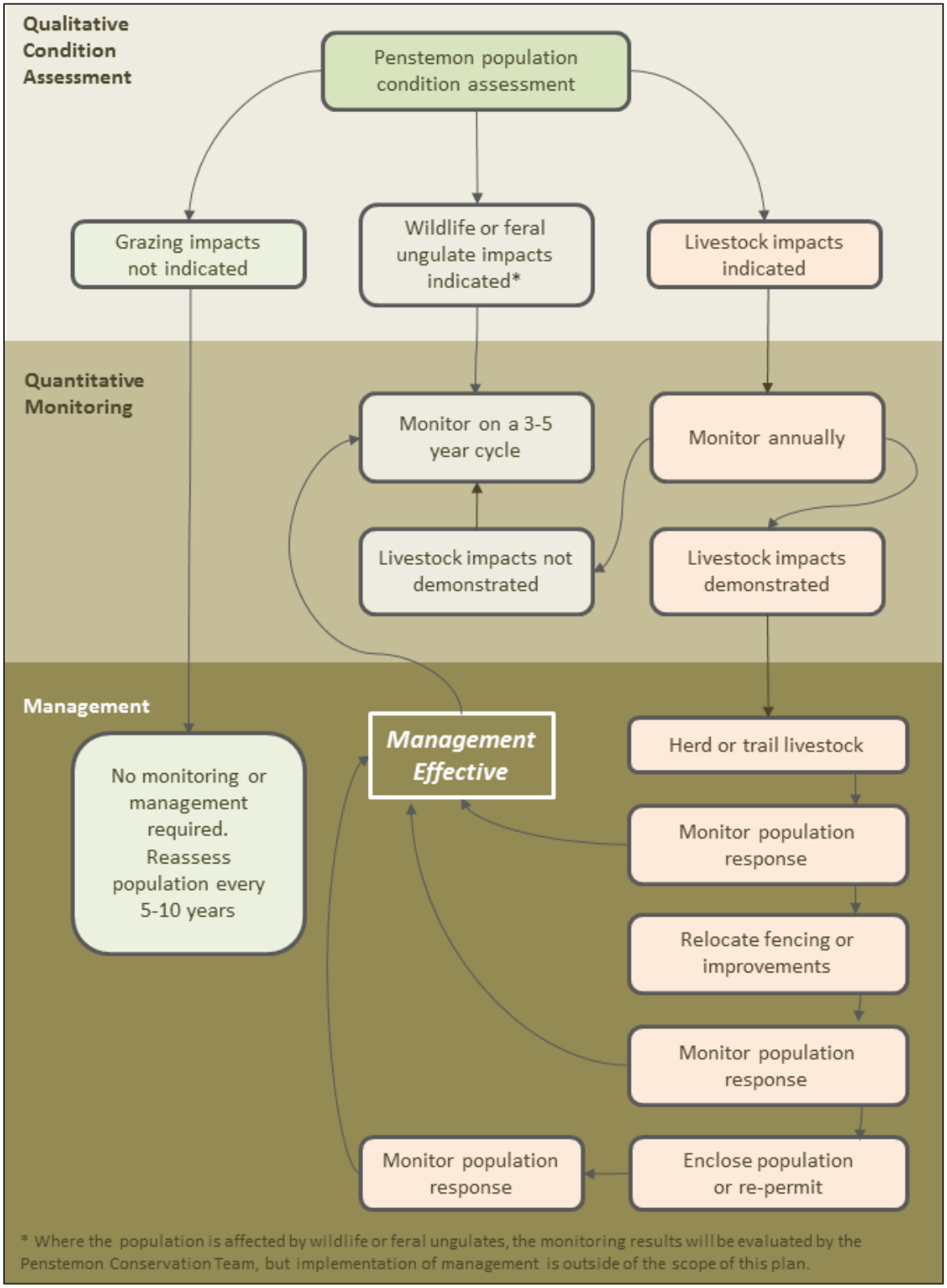

Figure 2. Management and monitoring decision matrix.

Assessment and monitoring protocols follow the BLM's Assessment, Inventory, and Monitoring (AIM) methodologies (Herrick et al. 2005, 2009, 2015; MacKinnon et al. 2011; Toevs et al. 2011). The Penstemon Conservation Team has adapted these protocols to better assess beardtongue population conditions, invasive species distributions, and habitats. The following sections detail how the objectives stated above will be addressed. This plan will be implemented under agency partnerships and funding. See section 9 of the Agreement for more discussion of recent funding and research initiatives.

Step 1: Assess Current Conditions (addresses Objective 1)

Assessment of the current condition of conservation areas will entail A) prioritization of livestock grazing allotments presented in this document and B) qualitative and quantitative evaluation of the proportion (if any) of beardtongue occurrences in priority livestock grazing allotments that are being grazed or trampled during an initial 2-year period. The general distribution of livestock grazing allotments and conservation units is shown in Figure A-1 (Appendix A). The distribution of livestock grazing allotments and conservations areas in Units 1–5 is shown in Figures A-2 through A-6.

A) Assessment Prioritization

Rather than monitor each grazing allotment in which Graham's or White River beardtongues are found, the Penstemon Conservation Team will focus on those allotments that have the greatest chance of experiencing livestock grazing impacts. Significant impacts from sheep grazing have been documented in long-term monitoring demographic plots (Reisor et al. 2012). Additionally, the steep terrain where the beardtongues commonly occur is more accessible to sheep than to cattle. Those sheep grazing allotments with the highest-density animal unit months (AUMs)[1] per acre are the first priority for condition assessment and monitoring activities. The second priority will be cattle grazing allotments with the highest-density AUMs, and the third priority will be the remaining allotments prioritized from highest- to lowest-density AUMs.

In total, seven sheep grazing allotments have been prioritized for monitoring (shaded in gray in Table 2). Each priority allotment and a control site will be assessed as part of plan implementation. The assessment sites will encompass beardtongue occurrences within one livestock grazing allotment and its intersection with one conservation area. Paired control sites are defined the same.

Table 2. Priority Livestock Grazing Allotments by Conservation Unit

Field Office	Allotment Name	Allotment Number	Grazer Type	Season of Use	BLM/Public Active AUMs	Other AUMs Combined	% Public Land Forage	BLM Acres	BLM Acres per AUM
Conservation Unit 1: Sand Wash*									
VFO	Wildhorse Bench	8808	Sheep	10/01–05/01	4,090	529	100	22,619	5.5
VFO	Devils Canyon	4882	Cattle	11/01–04/30	1,368	0	100	19,147	14.0
VFO	Bull Canyon	4878	Cattle	11/01–04/01	1,000	0	100	15,714	15.7
VFO	Little Desert	5880	Cattle	11/05–04/23	2,564	345	100	43,370	16.9

[1] One AUM is the amount of forage required by one animal unit (AU) for 1 month. One AU is defined as a mature (1,000-pound) cow (or equivalent) with an average consumption rate of 26 pounds of forage dry matter per day (Society for Range Management 1998), whereby an AUM equals approximately 600–1000 pounds of dry forage consumed over 31 days.

Table 2. Priority Livestock Grazing Allotments by Conservation Unit

Field Office	Allotment Name	Allotment Number	Grazer Type	Season of Use	BLM/Public Active AUMs	Other AUMs Combined	% Public Land Forage	BLM Acres	BLM Acres per AUM
VFO	Green River Bottoms	15878	Cattle	05/15–10/31	330	30	88	6,263	19.0
VFO	Green River AMP	8803	Cattle	06/01–10/15	197	275	100	8,781	44.6
VFO	Twin Knolls	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Conservation Unit 2: Seep Ridge									
VFO	Olsen AMP	8816	Sheep	11/01–02/28 03/01–06/15	9,268	2,876	100	102,929	11.1
VFO	Oil Shale	8813	Sheep	11/15–04/15	1,137	3,864	22	14,725	13.0
VFO	Sand Wash	8818	Cattle	11/30–04/30	4,526		76	52,037	11.5
VFO	Sunday School Canyon	8814	Cattle	11/01–04/30	2,843	1,263	100	40,489	14.2
VFO	Santio Sibello	8806	Cattle	11/01–02/28	96	0	100	2,187	22.8
Conservation Unit 3: Evacuation Creek									
VFO	Asphalt Draw	8817	Sheep	03/01–06/15 11/01–02/28	4,343	637	84	38,035	8.8
WRFO	Evacuation Creek	6357	Cattle	3/1–3/31 4/1–4/15 5/16–5/31 6/1–9/15 9/16–10/31 11/1–11/30 12/1–12/28	612 1,053 200 1,801 980 375 1,776	204 131 10 1,013 230 20 592	75 89 95 64 81 95 75	73,401	10.1
VFO	Atchee Ridge	8824	Cattle	04/01–10/01	6,311	3,850	100	80,123	12.7
VFO	Watson-BC	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Conservation Unit 4: White River									
WRFO	White River	8829	Sheep	03/01–04/30	141	857	30	501	3.6
WRFO	Banta	6341	Sheep	4/8–4/18	24	3	90	24	28.0
VFO	White River Bottoms	15850	Cattle	06/01–10/15	480	405	100	1,625	3.4
VFO	State Line (Coyote Wash)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
VFO	Weaver Ridge (Hells Hole)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Table 2. Priority Livestock Grazing Allotments by Conservation Unit

Field Office	Allotment Name	Allotment Number	Grazer Type	Season of Use	BLM/Public Active AUMs	Other AUMs Combined	% Public Land Forage	BLM Acres	BLM Acres per AUM
Conservation Unit 5: Raven Ridge									
VFO	Raven Ridge	15851	Sheep	03/01–05/05 12/05–02/28	1,112	184	81	7,448	6.7
VFO	Coyote Wash	2945	Sheep	11/01–5/20	7,762	0	100	82,760	10.7
WRFO	Raven Ridge	6312	Sheep	11/20–2/28	797	0	100	8,489	10.7
WRFO	Artesia	6308	Sheep	12/1–2/28 3/1–4/1 4/1–5/20	2,361 840 460	0 0 0	100	39,680	10.8
WRFO	Banta Flats	6343	Sheep	3/1–4/20 12/1–12/28	537 947	0 0	100	16,088	10.8

** Conservation Unit 1 may overlap with a livestock grazing allotment in the BLM Price Field Office. The extent of overlap between this allotment and beardtongue occurrences will be addressed in 2016 as part of annual plan review.*

The sheep grazing allotments shaded in gray in Table 2 will be the first priority for condition assessments in Years 1–2 of plan implementation. See the Plan Implementation section below for more details on implementation schedule. The need for monitoring or management will be based on the evaluation and monitoring process and management triggers outlined in the sections below.

B) Qualitative and Quantitative Evaluation

Qualitative and quantitative monitoring protocols follow the BLM AIM Strategy (Herrick et al. 2005, 2009, 2015; MacKinnon et al. 2011; Toevs et al. 2011) with modifications. Qualitative protocols include on-site visual evaluation and photo points. Quantitative protocols entail quantification of the six core indicators recommended for quantitative vegetation monitoring on BLM lands: bare ground, vegetation composition, invasive plant species, plant species of management concern (i.e., the *Penstemon* species), vegetation height, and large intercanopy gaps (Herrick et al. 2015). These indicators will be measured using the line-point intercept (LPI) method supplemented by plot-level inventories of the beardtongues and invasive plant species and inter-canopy gap line-intercept. The AIM protocols will also be supplemented with utilization estimates and photo point monitoring to track habitat conditions.

Step 2: Monitor to Quantify Impacts (addresses Objective 1)

Monitoring will be implemented where beardtongue individuals in an assessment site have been impacted by livestock grazing. Beardtongue monitoring will be based on the BLM AIM LPI and plot design (Herrick et al. 2015; Toevs et al. 2011). Each monitoring site will encompass a discrete occurrence area within one livestock grazing allotment and its intersection with one conservation area. Paired control sites are defined the same. Plot size and transect length have been modified to better suit the distributional scale and pattern of the target species. Graham's and White River beardtongues occur in sparsely vegetated shale badlands, and occurrences generally consist of a small number of individuals with a clustered distribution pattern. Plant occurrences are frequently distributed in a linear or clustered pattern along ridgelines, rock ledges, steep slopes, washes, and rills. The sampling area will consist of a 25-meter (m) transect centered in a 25 × 2–m plot area to maximize the number of monitoring plots while also capturing diversity and conditions in and near plant locations. The ends of the 25-m transect can be permanently marked to allow for repeat measurements. The methods and indicators for monitoring are detailed in Table 3.

Table 3. Methods and Indicators for Condition Assessments and Monitoring

Monitoring Target	Method	Indicators	Description
Condition Assessment Qualitative assessment and photographic documentation of beardtongue population and habitat condition	Photo points Rangeland health assessment (Pellant et al. 2005)	Evidence of browsing on beardtongue plants (livestock, wildlife, or feral ungulates) Bare ground Vegetation structure Ecological condition	At priority beardtongue population locations, photo points will be established at geo-referenced points. At each point, a series of photographs will be taken that document the following: 1) Landscape position 2) Vegetation structure and composition 3) Ground cover condition 4) General plant condition Condition assessment can also be used to document conditions in potential reference sites.
Monitoring Quantification of direct impacts to populations and habitats Quantification of population status, trend, and ecological functioning	LPI on a 25-m transect (fifty 0.5-m intervals) 25 x 2–m (50-m^2) plot-level penstemon plant inventory, and invasive plant species cover estimation Maximum vegetation height within a 15-centimeter (cm) radius of the points at 5 m, 10 m, 15 m, 20 m, and 25 m on the transect (five measurements per transect) Mapping of intercanopy gaps of more than 30-cm length by gap type (e.g., bare ground, rock, soil crust) along the entire 25-m transect Utilization cages	Ground cover (bare soil, biological soil crust, litter, pellets, rock) Vegetation composition Beardtongue population structure and density; beardtongue utilization Invasive plant species presence and density Vegetation height Intercanopy gaps	The LPI and plot-level inventory methods will be implemented systematically as pilot studies of beardtongue population conditions; will be done randomly or at selected reference sites to evaluate general habitat conditions. At each monitoring location, a 25-m transect will be aligned perpendicularly to the dominant slope. The 50-m^2 plot area will extend 1 m on either side of the transect. LPI: Plant species and ground cover will be recorded at each 0.5-m interval along the transect; grazer or browser type will be determined based on presence/absence of pellets or other sign. Plot-level inventory: For each beardtongue plant in the plot, recording will include if seedling (<2.5 cm rosette diameter), non-flowering, or flowering plant; any evidence of browsing; and proportion of plant browsed. Will record the cover of all invasive plant species. Vegetation height: The species and maximum height of vegetation within 15 cm of the points at 5 m, 10 m, 15 m, 20 m, and 25 m on the transect will be recorded. Intercanopy gaps: Any unvegetated areas equal to or longer than 30 cm will be mapped by ground cover type on the LPI data sheet.

Note: Methods are adapted from Veblen et al. 2014 (photo points) and Herrick et al. 2009 (LPI).

The LPI method allows rapid and efficient measurements of vegetation composition and ground cover conditions (Herrick et al. 2009). The plot-level beardtongue plant and invasive weed inventories ensure that the condition and density of the beardtongue occurrence is represented and that invasive weed species occurrence and density are quantified to inform subsequent management actions. The 25 × 2–m plot scale was selected for the following reasons: 1) it is a manageable scale for complete inventories of beardtongue plants and invasive weeds; 2) the relatively narrow, 2-m width of the plot will minimize trampling within the sampling area; 3) the plot size will allow replication in small occurrence areas; and 4) the plot shape allows for efficient sampling of linear occupied habitats along a given slope and aspect on steep terrain. The standardized AIM protocols entail two 150-foot intersecting transects surrounded by a 75-m radius plot. This sampling scale would result in considerable monitoring effort in unoccupied habitat on steep slopes and non-habitat areas. The proposed sampling scheme will minimize monitoring time, maximize focus on sensitive species locations, and maximize sample size and the statistical power of the resulting data.

Overall plant utilization can also be evaluated using utilization cages at priority or reference locations (Coulloudon et al. 1999). Utilization cages may be used to evaluate whether impacts to the beardtongues or their habitats are due to livestock versus wildlife or feral ungulates in order to determine whether livestock management is called for. Evaluation of livestock utilization would entail cages being installed prior to the season of use and immediately following season of use. Evaluation of utilization by wildlife or feral ungulates would entail cage installation outside of the livestock season of use or evaluation of beardtongue sites outside of grazing allotments.

Beardtongue utilization will be measured as the proportion of flowering plants browsed. (Based on Reisor et al. 2012, it is assumed that Graham's beardtongue basal leaf rosettes are not browsed.) For purposes of this plan, *population* is defined as a discrete concentration of beardtongue individuals within an assessment or monitoring site, which will generally be defined by the geographic limits of seed dispersal (e.g., the boundaries of a canyon, ridgeline, or watershed).

Assessment and Monitoring Sampling Design

Preliminary assessments of beardtongue occurrences in priority livestock grazing allotments will begin during Year 1 of plan implementation. Monitoring plots will be established in monitoring sites and ungrazed reference sites in priority allotments where browsing by livestock, wildlife, or feral ungulates are determined to, or have potential to, negatively affect beardtongue populations. Additional areas may be selected for assessment or monitoring in subsequent years of plan implementation to provide additional baseline or reference data, or to measure population or habitat response to management actions.

Conditions assessments and pilot monitoring of beardtongue occurrences in one or more of the priority grazing allotments in each conservation unit (see Table 2) will be implemented in Year 1 of plan implementation. Pilot monitoring using both the qualitative assessment and quantitative monitoring methods described above are needed to determine 1) general population and habitat conditions and 2) the amount of variation in species diversity and other habitat features on which to base monitoring sample sizes. The Penstemon Conservation Team proposes a pilot sample of 20–30 LPI plots for each species. The pilot study plots should be selected in known plant occurrences where priority grazing allotments intersect conservation areas. Subsequent monitoring plot sample size will be based on location and/or species-specific sample size estimates. This pilot assessment and monitoring design will result in early efforts focused on relatively dense beardtongue occurrences within grazing allotments with high AUMs. Where the pilot studies or assessment efforts identify impacts to beardtongue individuals from livestock, the following monitoring and management actions may be triggered.

Step 3: Implement and Adapt Management (addresses Objective 2)

Any active management of permitted grazing allotments or livestock will be based on the results of condition assessments (Step 1) and monitoring (Step 2). The first priorities for condition assessments and pilot monitoring are those grazing allotments where the greatest impact potential exists: high-density sheep AUMs in or near conservation areas and occupied habitats on BLM-managed lands. See Figure 2 for the relationships between condition assessment with monitoring and management options under existing grazing permits, and conditions under which an existing grazing permit may be revised and re-permitted.

Within the context of the assessment, monitoring, and management processes described above, negative impacts to the beardtongues may be avoided by applying best management practices (BMPs) where livestock grazing occurs in conservation areas or BLM-managed occupied habitats.

Best Management Practices

BMPs are designed to minimize impacts to sensitive resources from livestock grazing and associated management activities. In general, management practices should maintain or establish upward vegetation trend and be protective of beardtongue populations and habitats. The following BMPs are listed from those that are easily implementable to those that are more intensive. These BMPs should be adhered to, to the extent feasible, in designated conservation areas and BLM-managed occupied habitats. These BMPs follow the management approaches identified in Figure 2, and are listed in order of preferred implementation from the most easily implementable BMPs to those requiring more intensive management:

1. Monitor occupied habitats for invasive plant species.
2. Locate salt and supplements away from beardtongue occurrences and habitats and in places that would minimize trailing through occupied habitats.
3. Reposition fencing in occupied habitats to minimize impacts from trailing or maintenance.
4. Locate water sources 600 feet away from beardtongue occurrences and occupied habitats and in places that would minimize trailing through occupied habitats.
5. Consider adjusting livestock numbers or season of use to minimize impacts to flowering plants during years of above-average and below-average rainfall based on climate data from the National Oceanic and Atmospheric Administration.
6. Minimize or eliminate livestock use during the growing season.
7. Where management strategies are demonstrated to be beneficial to the species or to individuals or habitats within a monitoring site, those strategies will be considered for implementation at a range-wide or allotment level.

PLAN IMPLEMENTATION

This livestock grazing management plan will be implemented in fall 2015 and/or spring 2016 by the Penstemon Conservation Team. Table 4 outlines the Year 1–Year 5 implementation timelines based on the assessment, monitoring, and management triggers outlined in Figure 2. The timeline is organized so that at least one priority grazing allotment in each conservation unit is evaluated within the first 2 years of plan implementation.

Table 4. Livestock Grazing Management Plan Year 1–Year 5 Implementation Schedule

Unit	Allotment	2016		2017			2018			
		Condition Assessment	Quantitative Monitoring	Condition Assessment	Quantitative Monitoring	Evaluate Monitoring & Implement Management	Condition Assessmen t	Quantitative Monitoring	Evaluate Monitoring & Implement Management	Management Effectiveness Monitoring*
1	Wildhorse Bench	X	X			X				X
2	Olsen AMP	X	X			X				X
3	Asphalt Draw	X	X			X				X
4	White River			X	X				X	
5	Raven Ridge (VFO)			X	X				X	
5	Coyote Wash			X	X				X	
2	Oil Shale			X	X				X	
4	White River Bottoms						X	X		
2	Sand Wash						X	X		
3	Evacuation Creek						X	X		

Unit	Allotment	2019				2020			
		Condition Assessment	Quantitative Monitoring	Evaluate Monitoring & Implement Management	Management Effectiveness Monitoring	Condition Assessment	Quantitative Monitoring	Evaluate Monitoring & Implement Management	Management Effectiveness Monitoring*
5	Raven Ridge (WRFO)			X	X				X
5	Artesia			X	X				X
5	Banta Flats			X	X				X
4	Banta	X	X					X	
1	Bull Canyon	X	X					X	
2	Sunday School Canyon	X	X					X	
3	Atchee Ridge					X	X		
4	Weaver Ridge					X	X		
3	Watson BC					X	X		

* Where management is implemented, management effectiveness monitoring will take place annually or seasonally for a minimum of 3 years.

The Livestock Grazing Management Subcommittee will meet in fall 2016 to review the results of priority allotment assessments and monitoring data collected through spring 2016. The subcommittee will present the results and any proposed revisions to the plan to the Penstemon Conservation Team in their 2016 annual report. Any modifications to the plan will be presented to the Penstemon Conservation Team in an annual report for review and adoption.

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Appendix A:

Maps

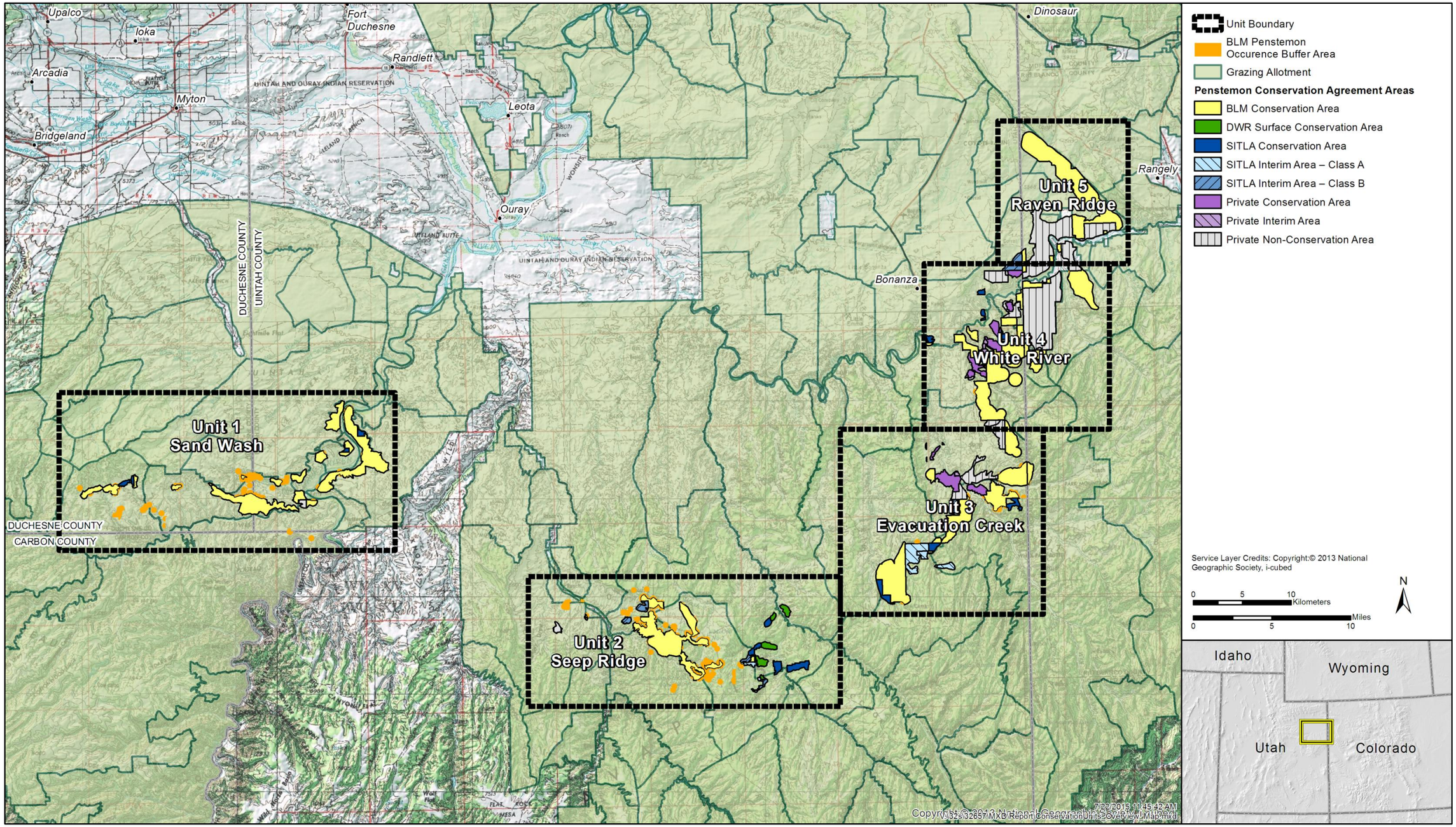

Figure A.1. Overview map of conservation units, conservation areas, and livestock grazing allotments.

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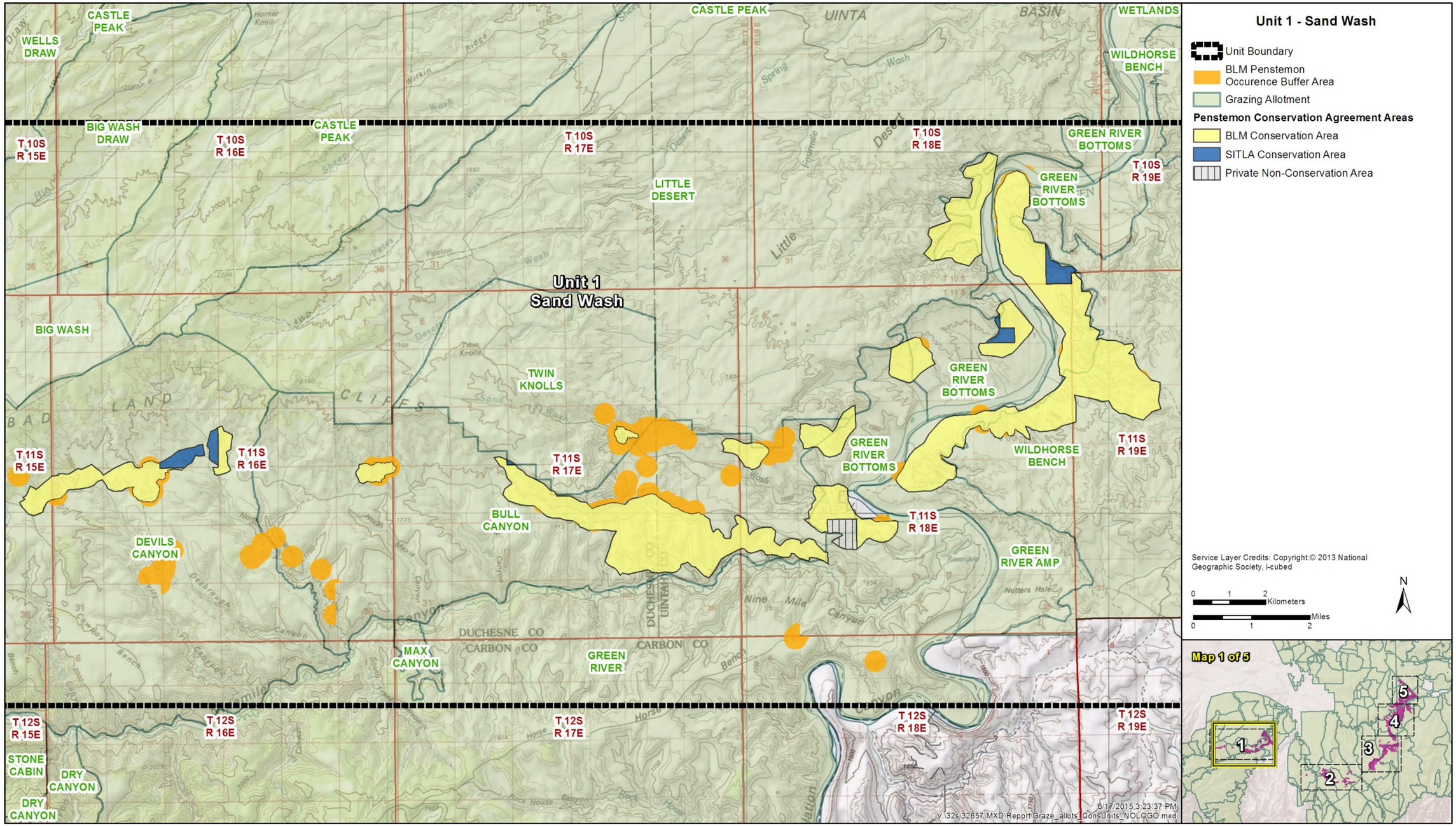

Figure A.2. Livestock grazing allotments in Unit 1: Sand Wash.

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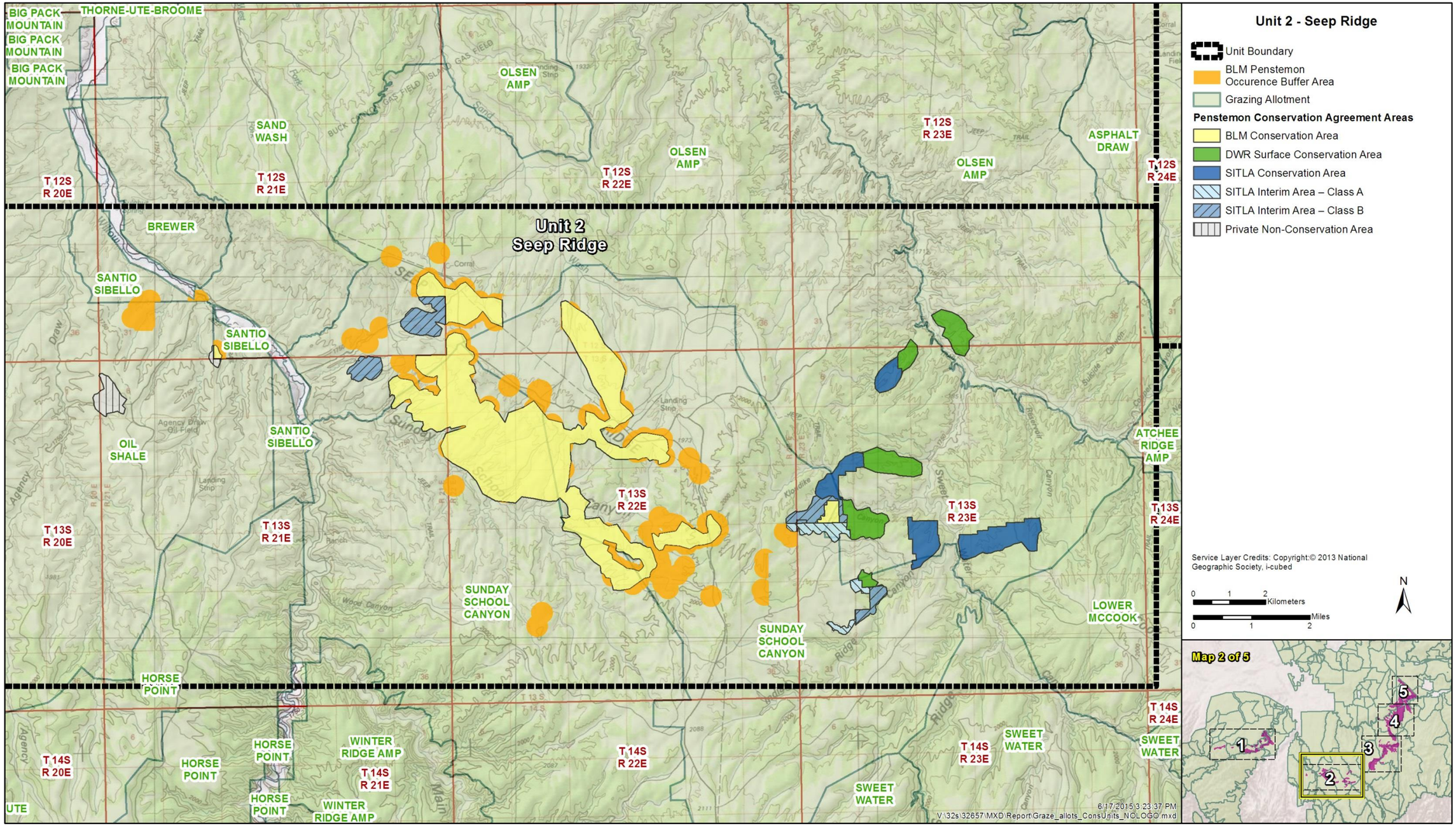

Figure A.3. Livestock grazing allotments in Unit 2: Seep Ridge.

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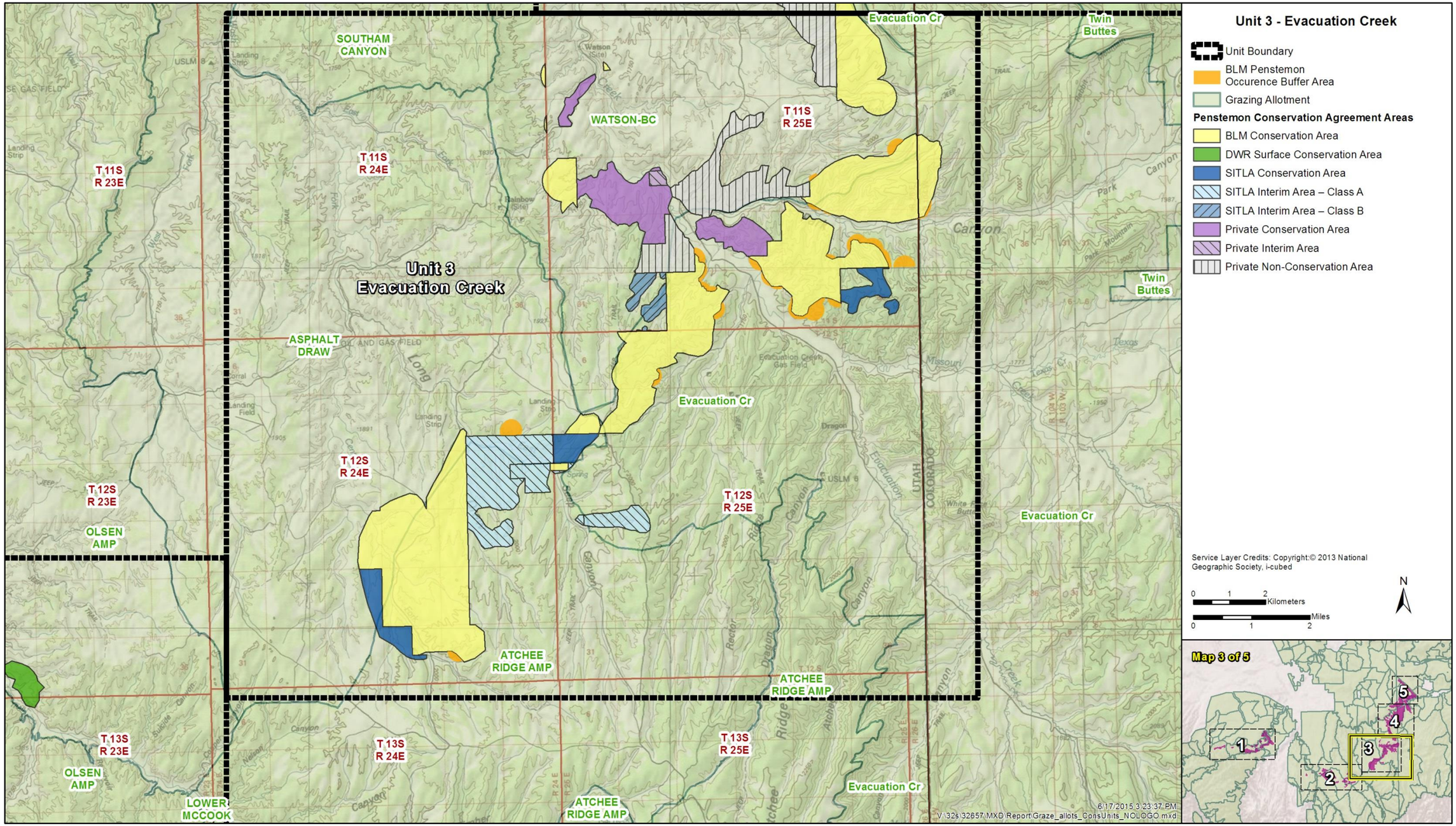

Figure A.4. Livestock grazing allotments in Unit 3: Evacuation Creek.

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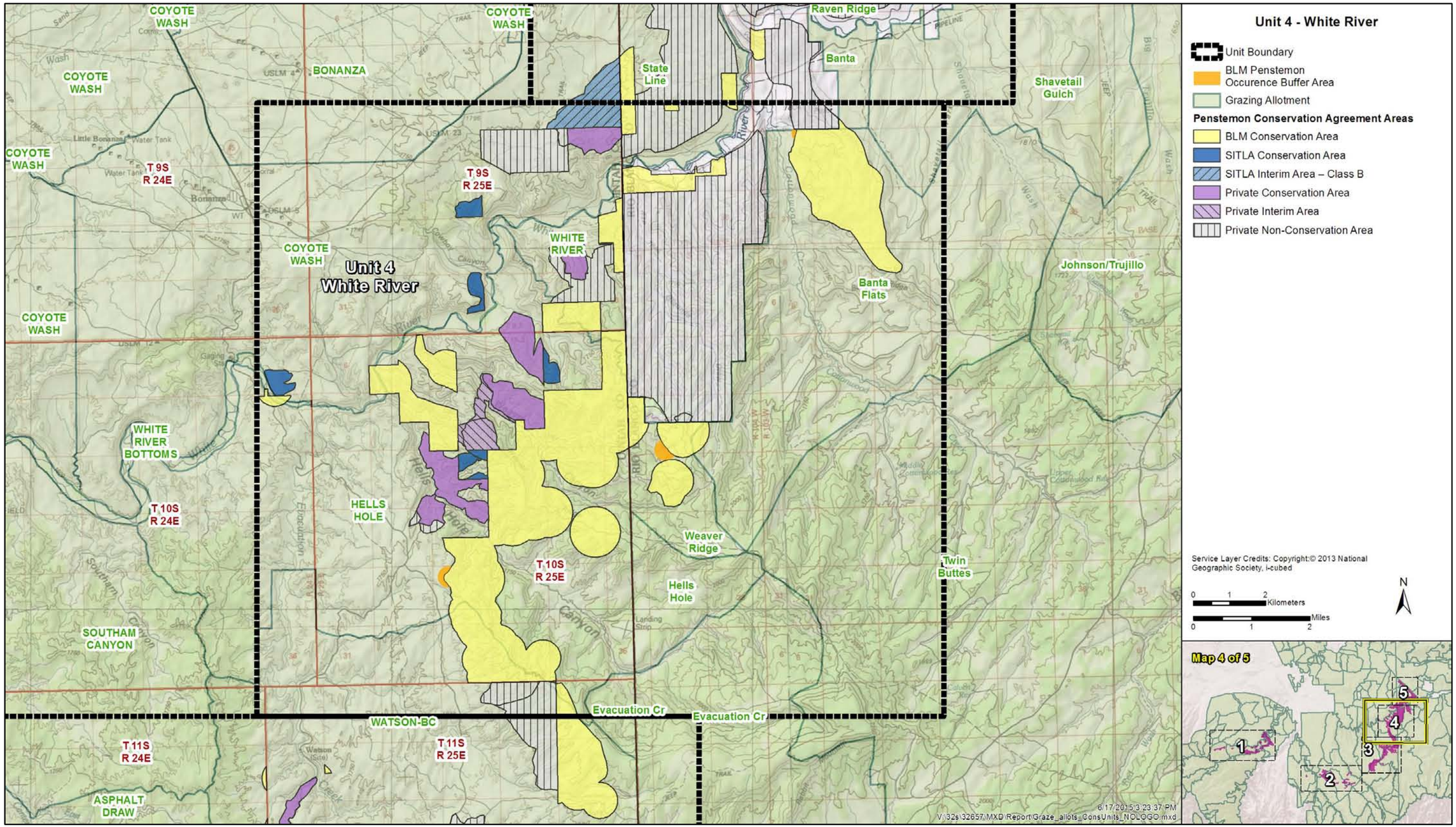

Figure A.5. Livestock grazing allotments in Unit 4: White River.

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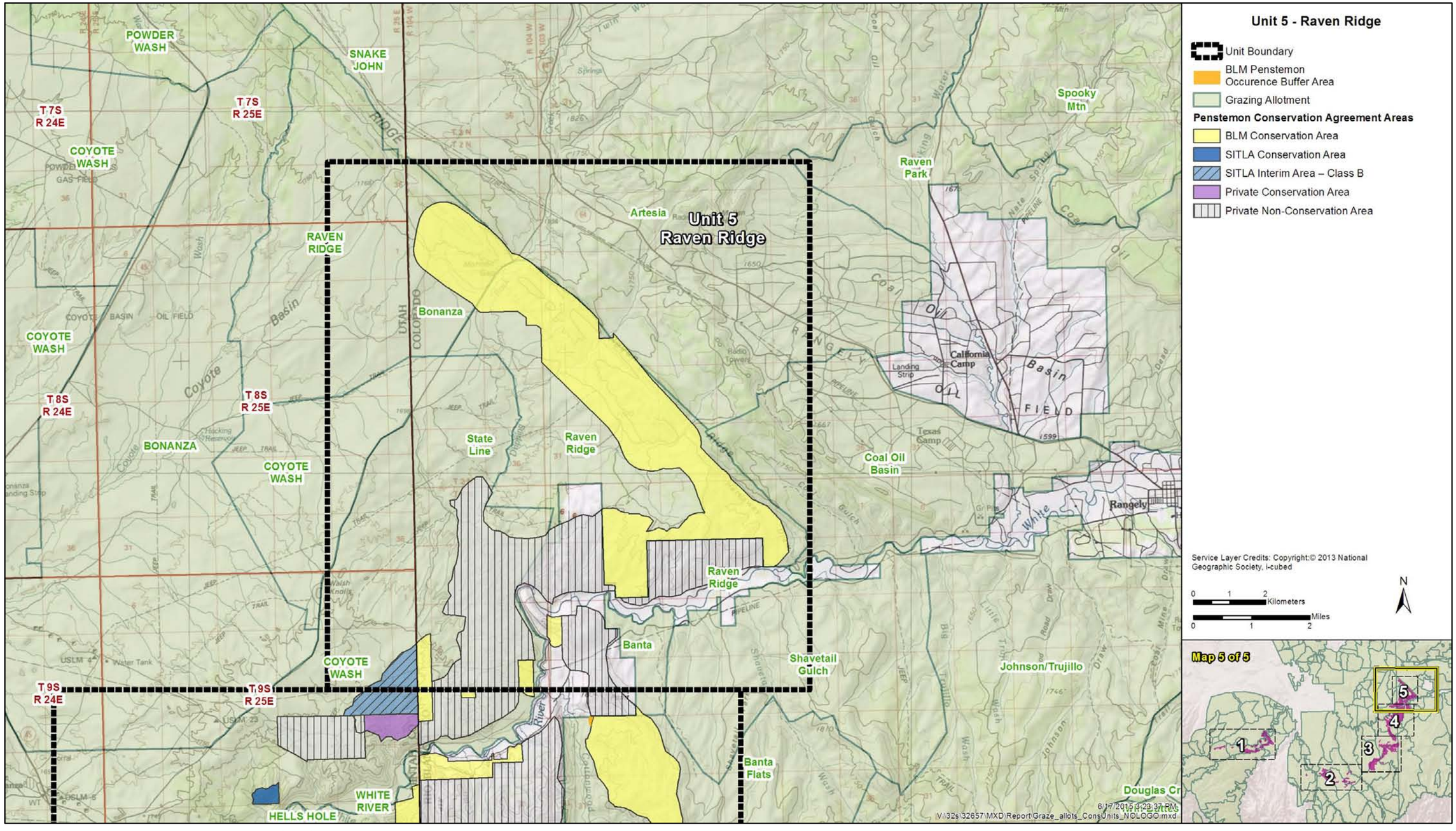

Figure A.6. Livestock grazing allotments in Unit 5: Raven Ridge.

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