

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

2015 ANNUAL REPORT



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

March 2016

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

2015 ANNUAL REPORT

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**

March 10, 2016

CONTENTS

Penstemon Conservation Team Activities	1
Mitigation Plan.....	1
Weed Management Plan	1
Livestock Grazing Management Plan	1
Surface Disturbance Plan	2
Conservation Agreement Implementation.....	3
BLM.....	3
SITLA	4
Permitted Activities in Beardtongue Habitats.....	5
BLM.....	5
SITLA	5
Data Management Strategy	5
BLM.....	5
SWCA Environmental Consultants	5
2015 Field Survey Results	6
BLM.....	6
Utah Endangered Species Mitigation Fund Penstemon Conservation Action (SWCA).....	6
Utah Natural Heritage Program	6
Ongoing Research	6
BLM.....	6
Red Butte Garden Conservation Program.....	7
Brigham Young University	7
Utah Endangered Species Mitigation Fund Penstemon Conservation Action (SWCA).....	7
Future Subcommittee work	9
Literature Cited	10

TABLES

Table 1.	Existing Baseline Disturbance by Conservation Unit Subdivided by Each Core Conservation Area (CCA Type)	2
Table 2.	ESMF <i>Penstemon</i> Conservation Action Project Surveys and Ongoing Research	7

This page intentionally blank

PENSTEMON CONSERVATION TEAM ACTIVITIES

The Penstemon Conservation Team was established in 2014 and comprises the signatories of the *Penstemon Conservation Agreement and Strategy for Graham's beardtongue (Penstemon grahamii) and White River beardtongue (P. scariosus* var. *albifluvis)* (Penstemon Conservation Team 2014). The conservation agreement should be cited as follows:

Penstemon Conservation Team. 2014. *Conservation Agreement and Strategy for Graham's Beardtongue (Penstemon grahamii) and White River Beardtongue (P. scariosus* var. *albifluvis)*. Prepared for the State of Utah School and Institutional Trust Lands Administration; Uintah County, Utah; Utah Public Lands Coordination Office; Utah Division of Wildlife Resources; Rio Blanco County, Colorado; Bureau of Land Management; and U.S. Fish and Wildlife Service. Prepared by SWCA Environmental Consultants, Salt Lake City, Utah. July 22, 2014.

Four subcommittee plans were completed in 2015. They are described in the following sections and are available electronically on the Uintah County website at:

http://www.co.uintah.ut.us/public_notices/index.php.

Information included in this annual report is current as of February 16, 2016.

Mitigation Plan

As part of the Penstemon Conservation Team activities for 2015, a mitigation plan was developed to guide the implementation of avoidance, minimization, and mitigation measures for any future surface disturbance within designated conservation areas and on federal land (Penstemon Conservation Team 2015a). The plan outlines the survey methods to be used, general conservation measures to be employed within suitable habitat, and mitigation options if disturbance occurs within 300 feet of Graham's beardtongue and White River beardtongue plants. Any monetary mitigation payments will be deposited into a Penstemon mitigation fund account maintained by the State of Utah School and Institutional Trust Lands Administration (SITLA). The monetary mitigation costs developed in 2014 by the U.S. Fish and Wildlife Service (USFWS) for the Uinta Basin hookless cactus (*Sclerocactus glaucus*) and Pariette cactus (*S. brevispinus*) will be used as a surrogate for the beardtongues until the Penstemon Conservation Team can evaluate the species-specific costs for ecological restoration of beardtongue habitat.

Weed Management Plan

As part of the 2015 weed management activities, including development of a weed management plan (Penstemon Conservation Team 2015b), surveys were conducted near roads and two-tracks across 3,399 acres of beardtongue conservation areas, although no treatment occurred directly within the conservation areas. New infestations were mapped in the Wolf Den fire perimeter, although none of these infestations are known from within beardtongue conservation areas.

Livestock Grazing Management Plan

The Penstemon Conservation Team developed a livestock grazing management plan (Penstemon Conservation Team 2015c) designed to identify areas where livestock grazing may be affecting the Graham's and White River beardtongues, to quantify the level of impacts, to make management changes to ameliorate the impacts, and to monitor the effectiveness of those management actions. The plan will be

implemented collaboratively between authorized Bureau of Land Management (BLM) range management staff and the Penstemon Conservation Team in an adaptive management context.

The management objectives under the plan are to 1) maintain current population levels of Graham's and White River beardtongues; 2) maintain the plant community in Graham's and White River beardtongue habitats, and 3) coordinate livestock grazing monitoring with invasive species monitoring under the Penstemon Conservation Team's weed management plan (Penstemon Conservation Team 2015b) and the rangewide monitoring plan for the beardtongues.

These objectives will be achieved through a rangewide monitoring program that will 1) assess current conditions in conservation areas and occupied habitats where livestock grazing occurs; 2) monitor to quantify impacts from livestock, feral ungulates, and wildlife wherever beardtongue individuals have been impacted by grazing or trampling; 3) guide the implementation of management to minimize or eliminate any impacts to beardtongue populations or habitats; and 4) evaluate the effectiveness of management actions in an adaptive management context.

The Penstemon Conservation Team drafted a pilot study design as part of the development of the plan. The purpose of the pilot study is to identify ungrazed or limited-access beardtongue occurrences that can be used as control sites in each allotment, to determine the appropriate plot scale and sample size needed to support a statistically sound sampling design, and to inform any potential management decisions. The pilot study methods were implemented as part of the 2015 Endangered Species Mitigation Fund (ESMF) Study (see Ongoing Research section) and will be continued in 2016.

Surface Disturbance Plan

The surface disturbance plan (Penstemon Conservation Team 2015d) outlines the protocol used to document existing disturbance within beardtongue conservation areas, known as the "baseline." It also establishes a process for protesting which disturbances were included in the baseline. A shapefile of baseline disturbances was completed and approved by the Penstemon Conservation Team. Table 1 provides an overview of the amount of baseline disturbance by conservation area.

Table 1. Existing Baseline Disturbance by Conservation Unit Subdivided by Each Core Conservation Area (CCA Type)

Unit	CCA Type	New Surface Disturbance Cap*	Total Acres	Total Acres Disturbance	Percent Disturbance in Baseline
1	BLM Conservation Area	5%	8,680.6	44.1	0.5%
	SITLA Conservation Area	5%	337.7	4.3	1.3%
2	BLM Conservation Area	5%	5,274.6	129.7	2.5%
	SITLA Conservation Area	5%	866.3	9.3	1.1%
	SITLA Interim - Class A	5%	197.2	3.1	1.6%
	SITLA Interim - Class B	5%	580.6	10.3	1.8%
	DWR Surface Conservation Area	5%	743.5	3.8	0.5%
3	BLM Conservation Area	2.5%	5,467.5	38.2	0.7%
	BLM Conservation Area	5%	3,297.0	46.0	1.4%
	SITLA Conservation Area	5%	728.6	16.2	2.2%

Table 1. Existing Baseline Disturbance by Conservation Unit Subdivided by Each Core Conservation Area (CCA Type)

Unit	CCA Type	New Surface Disturbance Cap*	Total Acres	Total Acres Disturbance	Percent Disturbance in Baseline
	Private Conservation Area	5%	1,246.4	11.8	0.9%
	Private Interim Area	5%	42.7	0.4	0.9%
	SITLA Interim - Class A	NA	1,311.6	24.2	1.8%
	SITLA Interim - Class B	NA	208.0	2.2	1.1%
4	BLM Conservation Area	2.5%	9,328.6	143.3	1.5%
	BLM Conservation Area	5%	51.2	0.0	0.0%
	Private Conservation Area	2.5%	467.0	3.0	0.6%
	Private Conservation Area	5%	1,073.6	2.0	0.2%
	Private Interim Area	NA	303.2	15.8	5.2%
	SITLA Conservation Area	5%	430.3	0.7	0.2%
	SITLA Interim - Class B	NA	304.0	0.0	0.0%
5	BLM Conservation Area	2.5%	6,557.0	124.5	1.9%
	SITLA Interim - Class B	NA	235.3	4.7	2.0%

* "New Surface Disturbance Cap" identifies that amount of new surface disturbances allowed within each CCA above the baseline (the last column in the table).

CONSERVATION AGREEMENT IMPLEMENTATION

BLM

In 2015, the BLM worked to incorporate beardtongue conservation agreement language into National Environmental Policy Act documents and to conference with USFWS when necessary.

Example text from an environmental assessment is provided here, which was written by both the BLM White River Field Office (WRFO) and the Vernal Field Office (VFO; DOI-BLM-UT-G010-2013-153-EA) for oil and gas seismic surveys. For text specific to other types of projects, please refer to Table 2 below for projects that included beardtongue (*Penstemon*) conservation agreement discussion, analysis, and mitigation measures, which can be obtained from VFO botanists.

Chapter 3:

On July 25, 2014 a Conservation Agreement and Strategy for Graham's Beardtongue (Penstemon grahamii) and White River Beardtongue (Penstemon scariosus var. albifluvis) between the State of Utah School and Institutional Trust Lands Administration (SITLA), Uintah County, Utah, Utah Public Lands Policy Coordination Office (PLPCO), Utah Division of Wildlife Resources (UDWR), Rio Blanco County, Colorado, BLM, and USFWS was completed. The purpose of this agreement was to identify, avoid, minimize, and mitigate potential effects to Graham's beardtongue and White River beardtongue plants and habitat, and to promote the species long-term

persistence, thereby preventing the need for listing either species. The Agreement formalizes the objectives, timelines, and administration of conservation protocols for the species between the signatories and private landowners. In addition, the Agreement establishes Conservation Areas for the two species. The proposed project would be located within the Unit 4 Conservation Area.

Chapter 4:

With application of the ACMs found in Appendix C, the mitigation measures found in section 4.3.1.11a and applied as Conditions of Approval (COAs), and adherence to the Conservation Agreement and Strategy for Graham's Beardtongue (Penstemon grahamii) and White River beardtongue (P. scariosus var. albifluvis), the proposed project would not jeopardize the continued existence of the Graham's or White River beardtongue, or result in the destruction or adverse modification of proposed critical habitat.

Ch. 5 - Consultation and Coordination

<p><i>U.S. Fish and Wildlife Service (Utah and Colorado Ecological Services) (USFWS)</i></p>	<p><i>An informal conference regarding the project's potential effect on the proposed Graham's beardtongue and White River beardtongue, in adherence to the Conservation Agreement and Strategy for Graham's Beardtongue (<u>Penstemon grahamii</u>) and White River beardtongue (<u>P. scariosus</u> var. <u>albifluvis</u>)</i></p>	<p><i>USFWS concurred that the project would not jeopardize the continued existence of the Graham's or White River beardtongue.</i></p>
--	---	---

For all ground-disturbing activities in conservation areas, the following mitigation measure should be included:

After project completion, the applicant will submit a shapefile (or other GIS-compatible data) showing the final disturbance footprints for the entire project area. The BLM will track these data as disturbance within penstemon conservation areas. This information will be reported to the penstemon conservation team as part of an annual report.

SITLA

Designation of conservation areas on SITLA lands through rulemaking is completed.

PERMITTED ACTIVITIES IN BEARDTONGUE HABITATS

BLM

In beardtongue conservation areas in 2015, only one project for a development for three well pads was permitted, by the WRFO. No disturbance has occurred to date. Approximately 7.1 acres will be disturbed for the development in conservation area unit 4. When this disturbance occurs (and for any other permitted disturbances), the BLM will present these data in the annual report in the disturbance table (see Table 1). Both the WRFO and the VFO track projects that occur in beardtongue habitat.

SITLA

A drilling program was permitted in 2012, with two drill sites located in SITLA Interim - Class A conservation areas on the Holliday Block, but the drilling has not started yet. No conservation areas are on the Seep Ridge Block where Red Leaf Resources is actively operating.

DATA MANAGEMENT STRATEGY

All reports, publications, data, and literature mentioned in this annual report will be compiled in the Penstemon Conservation Team Google Drive site, hosted by Uintah County, and will be accessible to all conservation team members.

Disturbance shapefiles will be updated and managed by Uintah County.

BLM

Both the BLM WRFO and VFO compile and store their respective beardtongue survey data each year. At the end of each calendar year, these data are submitted to the Utah Natural Heritage Program (UNHP), Colorado Natural Heritage Program, and the USFWS. These data will also be provided to the Penstemon Conservation Team, along with the annual report, as a shapefile accessible to the team on the Google Drive site.

SWCA Environmental Consultants

All survey data collected as part of SWCA's ESMF Penstemon Conservation Action project are submitted annually to BLM and the UNHP. SWCA maintains a database of historic and recently collected beardtongue occurrences and shapefiles of the designated beardtongue conservation areas. SWCA also maintains geographic information systems (GIS) shapefiles of all individual beardtongue transplant locations, access routes, and any other pertinent spatial information needed to revisit monitoring or research sites. These data and reports will be provided to the team using Google Drive, with permission from the private stakeholders.

2015 FIELD SURVEY RESULTS

BLM

BLM VFO botanists surveyed five different areas in 2015: Bitter Creek, Raven Ridge, South Johnson Draw, South Willow Creek, and Badland Cliffs. In total, approximately 9,090 acres were surveyed (BLM 2015). Two-hundred and ninety-one (291) Graham's beardtongue individuals were found in the Bitter Creek survey area. No Graham's beardtongue individuals were found in the Raven Ridge, South Johnson Draw, and South Willow Creek survey areas. Some previously located Graham's beardtongue were relocated along Wrinkles Road, and some new areas were searched, but no new individuals were found. No White River beardtongue individuals were found during any of the 2015 searches. No surveys were conducted in the WRFO in 2015.

Utah Endangered Species Mitigation Fund Penstemon Conservation Action (SWCA)

Survey results for the 2015 Utah ESMF Penstemon Conservation Action project are summarized in the Ongoing Research section, Table 2. Surveys were conducted in West Agency Draw, Sand Wash, Buck Canyon, Woods Canyon, Atchee Ridge, and the Book Cliffs. New beardtongue occurrences were located in East Weaver Ridge and Park Canyon. Approximately 293 Graham's beardtongue and 400 White River beardtongue individuals were counted.

Utah Natural Heritage Program

The UNHP conducted beardtongue surveys in 2015, though these data were not available in time to include in this report. Data will be provided to the BLM VFO in 2016 and will be shared with the Penstemon Conservation Team when available.

ONGOING RESEARCH

BLM

The Colorado State Office and WRFO are monitoring a plot of Graham's beardtongue on Raven Ridge. The macroplot has been monitored since 2005, with a sampling objective of detecting a 20% difference in mean population density while being 90% confident of detecting a true change and accepting a 10% chance of detecting a false change. BLM counts the number of rosettes within the transects of the macroplot. BLM was unable to visit the plot in 2013, and it was later discovered that a rather large number of sheep were allowed to graze in and around the macroplot. A large decrease in the population size was seen in 2014. Signs of grazing were obvious. The number of rosettes found within the macroplot had a significant decrease from 2005 to 2014, but there was a significant increase in the number of rosettes from 2014 to 2015. The BLM is hopeful in 2016 that there will be another increase in the number of rosettes. An annual report on this monitoring effort will be made available to the Penstemon Conservation Team when completed.

Red Butte Garden Conservation Program

Red Butte Garden has been conducting demographic monitoring of both Graham's and White River beardtongue for 12 years (Pavlik et al. 2015). In 2015, total survivorship was higher than average across all monitored populations of both taxa, but reproduction was lower than average. Large herbivore disturbance was documented at some White River beardtongue monitoring sites, and the native checkerspot butterfly caterpillar has significantly impacted reproduction of Graham's beardtongue. Populations of both taxa have been stable over the course of the study, and Red Butte recommends discontinuing demographic monitoring and instead concentrating on experimental studies to inform future management actions.

Brigham Young University

In 2014 and 2015, researchers collected leaf samples to test the relationship between four varieties of the species *Penstemon scariosus*, including var. *albifluvis* (Stevens et al. 2016). Genetic analyses are nearly completed, and a final report is expected in early 2016. Results of the research were presented at the Utah Rare Plant Meeting on March 8, 2016.

Utah Endangered Species Mitigation Fund Penstemon Conservation Action (SWCA)

The goal of the Penstemon Conservation Action project is to meet immediate information needs regarding the distributions, habitat conditions, and restoration potential for Graham's and White River beardtongues as required by the 2014 Beardtongue Conservation Agreement. This project was initiated in early 2014 (FY2014; SWCA 2014) and has been ongoing (see SWCA 2015). Conservation activities performed under this project through 2015 and expected in 2016 are summarized in Table 2.

Table 2. ESMF *Penstemon* Conservation Action Project Surveys and Ongoing Research

Fiscal Year (Date Range)	Objectives	Proposed Activities	Outcomes
FY2014 (April 1–June 30, 2014)	<ul style="list-style-type: none"> Survey USFWS, UNHP, and BLM priority areas. Survey Utah Division of Wildlife Resources (DWR)–managed conservation areas. Collect genetic material from White River beardtongue populations to support Brigham Young University (BYU) genetics research. 	<ul style="list-style-type: none"> Survey five target areas: <ul style="list-style-type: none"> Willow Creek (BLM) Agency Draw (BLM) Kings Wells (DWR surface) Bitter Creek (DWR surface) White River North (SITLA) Collect White River beardtongue leaf material and voucher specimens nationwide. 	<ul style="list-style-type: none"> Documented 2,127 individual beardtongue plants (1,974 White River beardtongue and 153 Graham's beardtongue). Documented flower color, leaf width, and style lengths for White River beardtongue. Collected White River beardtongue leaf material and voucher specimens from populations at Utah-Colorado border and western extent of range. Submitted plant materials to BYU.

Table 2. ESMF *Penstemon* Conservation Action Project Surveys and Ongoing Research

Fiscal Year (Date Range)	Objectives	Proposed Activities	Outcomes
FY2015 (July 1 2014– June 30, 2015)	<ul style="list-style-type: none"> • Continue distributional surveys. • Initiate disturbance ecology assessments. • Initiate restoration research. 	<ul style="list-style-type: none"> • Survey extremes of range for both species, including range expansion for White River beardtongue in Grand County, Utah. • Seed collections. • Develop disturbance assessment methods. • Preliminary data collection. • Transplant experiments in private conservation areas. 	<ul style="list-style-type: none"> • 70 White River beardtongue seedlings were transplanted into unoccupied habitat in an Enefit conservation area in October 2014 (PESCAL-1). • The PESCAL-1 transplant cohort was monitored in June 2015 with 75% plant survival. • Surveys completed May–June 2015: <ul style="list-style-type: none"> ○ West Agency Draw (BLM) ○ Sand Wash ○ Buck Canyon (BLM) ○ Woods Canyon (BLM) ○ Atchee Ridge (BLM) ○ Book Cliffs (BLM Grand County) • Disturbance assessment plots were sampled in the Hells Hole grazing allotment in June 2015. • 2015 activities were limited by inaccessible roads, flooding, and fragile habitat conditions. Flowering was somewhat limited, and seed collection sites were not identified.
FY2016 (July 1 2015– June 30, 2016)	<ul style="list-style-type: none"> • Continue distributional surveys. • Complete disturbance ecology assessments for both species in one or more priority locations. • Continue restoration research. • Monitor FY2015 transplants. 	<ul style="list-style-type: none"> • Range expansion surveys for White River beardtongue. • Survey connectivity areas for both species. • Seed collections. • Disturbance assessment pilot study. • Monitor transplanted cohorts and experimental sites. 	<ul style="list-style-type: none"> • The PESCAL-1 transplant cohort was revisited in October 2015 to tag individual plants for ongoing monitoring. • New beardtongue occurrences were documented in two locations: <ul style="list-style-type: none"> ○ East Weaver Ridge (BLM) ○ Park Canyon (Enefit) • Four 35-seedling White River beardtongue cohorts (140 plants) were transplanted into Enefit conservation areas in October 2015 (PESCAL-2, PESCAL-3, PESCAL-4, and PESCAL-5). • 100 Graham's beardtongue seedlings were transplanted into four soil treatments (25 plants per treatment) in a prepared experimental plot at a Red Leaf's Seep Ridge EPS site in October 2015. • 13 Graham's beardtongue seedlings were transplanted into native shale habitat in a SITLA conservation area (PEGR-1). • Additional surveys, continuation of the disturbance assessment pilot study, seed collections, and monitoring of transplants and experimental sites are expected in May–June 2016.

The ESMF *Penstemon* Conservation Action project is expected to continue through FY2017 (June 30, 2017) or longer.

FUTURE SUBCOMMITTEE WORK

The following subcommittees will meet in 2016 to begin working on their respective plans:

- Demographic monitoring
- Restoration
- Seed collection and storage

LITERATURE CITED

- Bureau of Land Management (BLM). 2015. *Conservation Agreement Surveys for Penstemon grahamii and Penstemon scariosus* var. *albifluvis* in *Uintah and Duchesne Counties, Utah*. Vernal, Utah. 7 pp.
- Pavlik, B.M., C. McDonough, and C.E. Cort. 2015. *2015 Status Report Demographic Monitoring of Penstemon grahamii and Penstemon scariosus* var. *albifluvis*, *Uintah County, Utah*. December 16, 2015. Salt Lake City, Utah: Red Butte Garden and Arboretum, University of Utah. 47 pp.
- Penstemon Conservation Team. 2014. *Conservation Agreement and Strategy for Graham's Beardtongue (Penstemon grahamii) and White River Beardtongue (P. scariosus* var. *albifluvis)*. Prepared for the State of Utah School and Institutional Trust Lands Administration; Uintah County, Utah; Utah Public Lands Coordination Office; Utah Division of Wildlife Resources; Rio Blanco County, Colorado; Bureau of Land Management; and U.S. Fish and Wildlife Service. Prepared by SWCA Environmental Consultants, Salt Lake City, Utah. July 22, 2014.
- . 2015a. *Conservation Agreement and Strategy for Graham's Beardtongue (Penstemon grahamii) and White River Beardtongue (P. scariosus* var. *albifluvis)*: *Mitigation Plan*. Prepared by the Penstemon Conservation Team. July 22, 2015.
- . 2015b. *Conservation Agreement and Strategy for Graham's Beardtongue (Penstemon grahamii) and White River Beardtongue (P. scariosus* var. *albifluvis)*: *Weed Management Plan*. Prepared by the Penstemon Conservation Team. July 22, 2015.
- . 2015c. *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. July 23, 2015.
- . 2015d. *Conservation Agreement and Strategy for Graham's Beardtongue (Penstemon grahamii) and White River Beardtongue (P. scariosus* var. *albifluvis)*: *Criteria for the Calculation of Baseline and New Surface Disturbance*. Prepared by the Penstemon Conservation Team. July 22, 2015.
- Stevens, M.R., R.L. Johnson, and L.A. Johnson. 2016. *Annual Report on Penstemon scariosus Complex Genetics*. Provo, Utah: Brigham Young University.
- SWCA Environmental Consultants (SWCA). 2014. *Annual Report to ESMF. FY2014 Penstemon Conservation Action Initiation (Contract Number 1007): Graham's beardtongue (Penstemon grahamii) and White River beardtongue (Penstemon scariosus* var. *albifluvis)* *Distribution surveys*. Salt Lake City, Utah. 44 pp.
- . 2015. *Penstemon Conservation Action Support*. Salt Lake City, Utah. 4 pp.