

PECE Evaluation for the Goose Creek milkvetch

2015 Conservation Agreement and Strategy

July 20, 2015

INTRODUCTION

In 2004, the U.S. Fish and Wildlife Service (Service) received a petition to emergency list Goose Creek milkvetch as threatened or endangered, and designate critical habitat concurrently with the listing (Red Willow Research Inc. 2004). We reviewed the petition and determined that emergency listing was not warranted. In 2007, we published a notice of 90-day finding (72 FR 46023) that the petition presented substantial scientific or commercial information indicating that listing Goose Creek milkvetch may be warranted, and that we were initiating a status review of the species.

In 2009, we concluded in our 12-month finding that listing Goose Creek milkvetch was warranted (74 FR 46521, September 10, 2009) under the Endangered Species Act (ESA), but precluded by higher priority actions. At that time, we assigned a listing priority number (LPN) of 5 to the species because the threats affecting the species were high in magnitude, but were non-imminent. Threats to the species included wildfire and associated wildfire management; nonnative introduced species, livestock use; development; recreation; mining; inadequacy of regulatory mechanisms; and small population size.

In 2012, during the Candidate Notice of Review (CNOR), we assigned a LPN of 2 to Goose Creek milkvetch because we determined the threats affecting the species were high in magnitude and imminent. The increase in listing priority to LPN 2 was based largely on threats from wildfire, firefighting, and post-fire emergency stabilization and restoration (ES&R) activities. Other factors that contributed to the magnitude of the threats to the species included negative effects from habitat alteration and wildfire management (ES&R activities including disking and seeding) associated with wildfires in 2007, competition from invasive nonnative plant species, and livestock trailing.

Conservation Efforts for Goose Creek milkvetch

In 2004, the Bureau of Land Management (BLM) in Idaho (Burley Field Office (FO)), Nevada (Wells FO), and Utah (Salt Lake FO) initiated conservation actions to protect Goose Creek milkvetch and its habitat. For example, the three BLM Field Offices contributed staff time and funding to perform surveys throughout the species' range, and developed and implemented monitoring for plant abundance and habitat condition. The Idaho, Nevada, and Utah BLM Field Offices incorporated the species into planning efforts for fire, and the Idaho BLM Field Office incorporated the species into its planning efforts for weed control, firefighting, and post-fire ES&R activities (BLM 2005; BLM 2013a). All offices continued weed control efforts in Goose Creek milkvetch habitat that were ongoing since 1998. In addition, the BLM in Utah protected one key site for Goose Creek milkvetch from extensive livestock trailing by completely fencing the site in 2015.

On July 14, 2015, a Conservation Agreement and Strategy (2015 CA) for Goose Creek milkvetch was finalized to continue and expand protection for the species. The purpose of the 2015 CA is to ensure the long-term persistence of Goose Creek milkvetch within its historical range by providing a framework and commitments for the implementation of conservation efforts. The signatories to the 2015 CA are the BLM in Idaho, Nevada, and Utah and the Service in Idaho, Nevada, and Utah. The implementation of the 2015 CA across three BLM Field Offices encompasses the majority of the species population (86 percent) and habitat (93 percent).

Purpose of this Document

The 2015 CA incorporates new conservation actions that will be enacted to address previously identified threats in our 2009 12-month finding (74 FR 46521, September 10, 2009) and 2014 Candidate Notice of Review (CNOR) (see Appendix 1 for all committed conservation actions). We believe the commitments in the 2015 CA are important to provide long-term proactive conservation for this species and its habitat. Leafy spurge remains a potential future threat to Goose Creek milkvetch. The 2015 CA includes two conservation actions that specifically address leafy spurge control:

1. Treatment of leafy spurge will occur by the BLM on an annual basis at known locations within GCM occupied habitat, and monitoring will be performed to evaluate the effectiveness of control methods;
2. Surveys will be performed by the BLM to detect new invasions of leafy spurge in Goose Creek milkvetch habitat on an annual or biennial basis.

We are required to make a listing determination per our Multiple District Litigation settlement agreement and 50 CFR Part 17. As part of our analysis, we evaluate these two conservation actions in the 2015 CA to determine whether they can be considered in our listing determination.

On March 28, 2003, the Service and National Oceanic and Atmospheric Administration (NOAA) Fisheries published the Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE; FR 68 15100). The purpose of PECE is to ensure consistent and adequate evaluation of recently formalized conservation efforts when making listing decisions. The policy provides guidance on how to evaluate conservation efforts that have not yet been implemented or have not yet demonstrated effectiveness. The evaluation focuses on the certainty that the conservation actions will be implemented and effective. The policy provides nine criteria for evaluating the certainty of implementation and six criteria for evaluating the certainty of effectiveness for conservation actions. The evaluation criteria include:

The certainty that the conservation effort will be implemented:

1. The conservation effort, the party(ies) to the agreement or plan that will implement the effort, and the staffing, funding level, funding source, and other resources necessary to implement the effort are identified.
2. The legal authority of the party(ies) to the agreement or plan to implement the formalized conservation effort, and the commitment to proceed with the conservation effort are described.

3. The legal procedural requirements (e.g. environmental review) necessary to implement the effort are described, and information is provided indicating that fulfillment of these requirements does not preclude commitment to the effort.
4. Authorizations (e.g., permits, landowner permission) necessary to implement the conservation effort are identified, and a high level of certainty is provided that the party(ies) to the agreement or plan that will implement the effort will obtain these authorizations.
5. The type and level of voluntary participation (e.g., number of landowners allowing entry to their land, or number of participants agreeing to change timber management practices and acreage involved) necessary to implement the conservation effort is identified, and a high level of certainty is provided that the party(ies) to the agreement or plan that will implement the conservation effort will obtain that level of voluntary participation (e.g., an explanation of how incentives to be provided will result in the necessary level of voluntary participation).
6. Regulatory mechanisms (e.g., laws, regulations, ordinances) necessary to implement the conservation effort are in place.
7. A high level of certainty is provided that the party(ies) to the agreement or plan that will implement the conservation effort will obtain the necessary funding.
8. An implementation schedule (including incremental completion dates) for the conservation effort is provided.
9. The conservation agreement or plan that includes the conservation effort is approved by all parties to the agreement or plan.

The certainty that the conservation effort will be effective:

1. The nature and extent of threats being addressed by the conservation effort are described, and how the conservation effort reduces the threats is described.
2. Explicit incremental objectives for the conservation effort and dates for achieving them are stated.
3. The steps necessary to implement the conservation effort are identified in detail.
4. Quantifiable, scientifically valid parameters that will demonstrate achievement of objectives, and standards for these parameters by which progress will be measured are identified.
5. Provisions for monitoring and reporting progress on implementation (based on compliance with the implementation schedule) and effectiveness (based on evaluation of quantifiable parameters) of the conservation effort are provided.
6. Principles of adaptive management are incorporated.

These criteria are not considered comprehensive evaluation criteria because the needs of species will vary greatly (PECE; FR 68 15104). The certainty of implementation and effectiveness of a formalized conservation effort may also depend on species-specific, habitat-specific, location-specific, and effort-specific factors. We consider all appropriate factors in evaluating formalized conservation efforts. The specific circumstances will also determine the amount of information necessary to satisfy these criteria.

To consider that formalized conservation efforts contribute to forming a basis for not listing a species or listing a species as threatened rather than endangered, we must find that the conservation efforts are sufficiently certain to be implemented and effective so as to have contributed to the elimination or adequate reduction of one or more threats to the species identified through the section 4(a)(1) analysis. The elimination or adequate reduction of section 4(a)(1) threats may lead to a determination that the species does not meet the definition of threatened or endangered, or is threatened rather than endangered. An agreement or plan may contain numerous conservation efforts, not all of which are sufficiently certain to be implemented and effective. Those conservation efforts that are not sufficiently certain to be implemented and effective cannot contribute to a determination that listing is unnecessary, or a determination to list as threatened rather than endangered. Regardless of the adoption of a conservation agreement or plan, if the best available scientific and commercial data indicate that the species meets the definition of “endangered species” or “threatened species” on the day of the listing decision, then we must proceed with appropriate rule-making activity under section 4 of the ESA.

PECE Analysis for Goose Creek milkvetch

A PECE analysis applies only to conservation efforts that have not yet been implemented or have not yet demonstrated effectiveness. Thus, the following analysis focuses on two new conservation actions for the Goosecreek milkvetch that partners have committed to complete under the 2015 CA. As mentioned above, the two conservation actions address leafy spurge and are as follows:

1. Treatment of leafy spurge will occur by the BLM on an annual basis at known locations within GCM occupied habitat, and monitoring will be performed to evaluate the effectiveness of control methods;
2. Surveys will be performed by the BLM to detect new invasions of leafy spurge in Goose Creek milkvetch habitat on an annual or biennial basis.

These two conservation actions have been implemented since 1999 in Idaho and are now being expanded under the 2015 CA to other geographic areas (Utah and Nevada) within the species range. In these two cases, we can use the past record of effectiveness in the old geographic areas to analyze success of the conservation measures being implemented and effective in the new geographic areas (Utah and Nevada).

PECE ANALYSIS

The certainty that the conservation efforts will be implemented:

- 1. The conservation efforts, the party(ies) to the agreement or plan that will implement the efforts and the staffing, funding level, funding source and other resources necessary to implement the efforts are identified.**

Conservation efforts:

Since 2004, we have coordinated with the BLM to develop conservation actions for Goose Creek milkvetch. One of the most effective actions to conserve the species' habitat has been the regular use of chemical and biological methods to treat leafy spurge (*Euphorbia esula*) by the BLM in Idaho and Utah. These methods were effective in reducing the acreage containing spurge in Idaho from 660 acres in 1999 to 14.3 acres in 2011 (Theodozio 2013, entire) and preventing leafy spurge from occurring in high densities in Goose Creek milkvetch habitat. The 2015 CA specifically identifies two conservation measures to detect and treat leafy spurge invasions (see Introduction, above).

Parties to the Agreement: The parties to the 2015 CA have signed the 2015 CA. The signatories to the agreement include the BLM Twin Falls District in Idaho, the BLM Elko District in Nevada, the BLM West Desert District in Utah, and the Service in Idaho, Nevada, and Utah. The BLM Districts oversee the individual BLM Field Offices that will be implementing the 2015 CA, including the Burley Field Office in Idaho, the Salt Lake Field Office in Utah, and the Wells Field Office in Nevada.

The Goose Creek milkvetch conservation team will consist of a designated representative from each signatory to this 2015 CA, and technical advisors (i.e. species experts, and others) as deemed necessary by the conservation team.

Funding: From 1998 through 2014, funding and in-kind services to implement conservation actions were provided by the BLM and the Service. Funding and agency staff time were made available on either an annual or periodic basis to monitor the status of Goose Creek milkvetch populations, survey for new populations, evaluate habitat conditions, and implement conservation actions and monitor results. In addition, the Idaho BLM and Utah BLM secured annual funding to detect and treat leafy spurge in Goose Creek milkvetch habitat since 1999 and 2004, respectively. The BLM in all three states anticipates continued funding for monitoring of Goose Creek milkvetch habitat and implementation of leafy spurge annual treatments (2015 CA, Table 2).

As documented in the 2015 CA, from 2004 to 2014 the signatories spent approximately \$448,350 implementing past actions for Goose Creek milkvetch. While it is understood that all funding and other agency resource commitments made under this 2015 CA are contingent upon appropriations by the respective entities, the signatories anticipate maintaining or increasing prior and ongoing funding levels and in-kind contributions in order to cooperatively manage for the conservation of Goose Creek milkvetch, monitor the species status, evaluate current stressors, and monitor the effectiveness of implemented actions. In future years, the signatories anticipate they will provide at least \$39,000 per year to implement the commitments in the 2015

CA (2015 CA, Table 2). Based on a track record of consistent annual funding from the signatories, we have a high degree of certainty that funding will continue to be available to implement conservation actions identified in the 2015 CA for Goose Creek milkvetch, including those targeted for leafy spurge detection, control, and effectiveness monitoring.

2. The legal authority of the party(ies) to the agreement or plan to implement the formalized conservation effort, and the commitment to proceed with the conservation effort are described.

Service: Section 2 of the ESA allows us to enter into a Conservation Agreement with other cooperating partners. Section 2 of the ESA states that encouraging interested parties, through Federal financial assistance and a system of incentives, to develop and maintain conservation programs is a key to safeguarding the Nation's heritage in fish, wildlife and plants.

BLM: The BLM has management authority over their respective lands which comprise 93 percent of occupied habitat and 86 percent of Goose Creek milkvetch plants respectively. The Federal Land Policy and Management Act (FLPMA, Section 307, 43 USC 1737), which provides overall direction to the BLM for conservation and management of public lands, allows the BLM to participate in conservation agreements. The national interagency Memorandum of Understanding (MOU) For The Conservation Of Species Tending Towards Federal Listing issued on January 25, 1994 (94-SMU-058) provides the general framework for cooperation and participation among cooperators to conserve species that could be listed under the ESA if conservation measures are not enacted to protect them.

The BLM manual, section 6840 (Special Status Species Management) provides overall policy direction to conserve listed threatened or endangered species on BLM administered lands, and to assure that actions authorized on BLM administered lands do not contribute to the need to list species deemed by BLM to be "sensitive." Methods and procedures of conservation include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, and transportation. According to BLM sensitive species management policy, the "special status" designation is intended to afford protection at least comparable to (if not greater than) the treatment of candidates for Federal listing (BLM 2001, p. 06C1). Goose Creek milkvetch is listed as a BLM sensitive plant in all three BLM Field Offices. The 2015 CA and its conservation commitments are consistent with the provisions of the national interagency MOU and the methods and procedures identified in the Special Status Species Management manual.

The 2015 CA is also consistent with the provisions for sensitive species identified in the following BLM Resource Management Plans, which encompass the range of the Goose Creek milkvetch on federal lands: the Cassia Resource Management Plan (BLM 1985a) as amended by the Fire Management Plan (BLM 2005) and the Fire, Fuels, and Related Vegetation Management Direction Plan Amendments (BLM 2008b); the Wells Resource Management Plan (BLM 1985b) as amended by the Elko/Wells Fire Management Amendment (BLM 2003); and the Box Elder Resource Management Plan (BLM 1986) as amended by the Salt Lake Fire Management Plan (BLM 2005).

In summary, we have a high degree of certainty that the parties have the legal authority and direction through regulatory mechanisms such as the ESA, FLPMA, and BLM sensitive species policy direction to implement conservation efforts for the Goose Creek milkvetch. The commitment to implement conservation measures is demonstrated by the fact that these same parties have implemented conservation measures for Goose Creek milkvetch since 1999 (see Conservation Efforts, Funding, above; Appendix 1).

3. The legal procedural requirements (e.g. environmental review) necessary to implement the effort are described and information is provided indicating that fulfillment of the requirement does not preclude commitment to the effort.

The National Environmental Policy Act (NEPA) identifies the necessary legal procedural requirement and environmental review necessary for the two conservation actions to be implemented on BLM lands. The BLM has completed the necessary NEPA analysis for weed control that includes leafy spurge control and no additional BLM decisions or external approvals are required prior to implementation. We conclude that the environmental requirements to treat leafy spurge have been fulfilled and do not preclude participating cooperators' abilities to complete these two conservation actions.

4. Authorizations (e.g. permits, landowner permission) necessary to implement the conservation effort are identified and a high level of certainty is provided that the party(ies) to the agreement or plan who will implement the effort will obtain these authorizations.

The BLM has management authority over their lands and comprise the majority of land ownership of Goose Creek milkvetch habitat. Through the 2015 CA, the BLM has agreed to implement the two conservation actions evaluated in this document as well as the remaining conservation actions in the 2015 CA on their lands. No additional authorizations are necessary because the majority of the species (93 percent of the total population) and its habitat (86 percent of the total habitat) occur on BLM lands. Therefore, the BLM has the proper authorizations in place to implement conservation actions for Goose Creek milkvetch on their lands where the actions will occur.

5. The type and level of voluntary participation (e.g. number of landowners allowing entry to their land, or number of participants agreeing to change management practices and acreage involved) necessary to implement the conservation effort is identified, and a high level of certainty is provided that the party(ies) to the agreement or plan who will implement the effort will obtain that level of voluntary participation (e.g. an explanation of how incentives to be provided will result in the necessary level of voluntary participation).

The three BLM Districts are signatory to the 2015 CA and have statutory authority to participate and implement conservation actions on lands that they manage. The three BLM Districts combined contain the majority of the total population (86 percent) and habitat (93 percent) for Goose Creek milkvetch species. No private landowners are involved with implementing the conservation measures.

6. Regulatory mechanisms (e.g. laws, regulations, ordinances) necessary to implement the conservation effort are in place.

As discussed in criterion 2, above, the parties to the 2015 CA have the legal and regulatory authority to implement the 2015 CA. Leafy spurge is identified as a noxious weed in Idaho, Nevada, and Utah. The Federal Noxious Weed Act provides the Secretary of Agriculture with the authority to prevent the spread of noxious weeds and to cooperate with other Federal, State, and local agencies to control noxious weeds (Public Law 93-629 (7 U.S.C. § 2801 et seq.; 88 Stat. 2148), enacted January 3, 1975). This Act and its administration on BLM lands under FLPMA provides indirect protection for Goose Creek milkvetch and its habitat from leafy spurge and other noxious weeds by requiring treatment of noxious weeds on BLM lands.

7. A high level of certainty is provided that the party(ies) to the agreement or plan who will implement the conservation effort will obtain the necessary funding.

As discussed in criterion 1, above, the parties to the 2015 CA have spent approximately \$448,350 on conservation actions and monitoring for Goose Creek milkvetch between 2004 and 2014. In future years, the parties anticipate to provide at least \$39,000 per year for the conservation actions outlined in the 2015 CA (2015 CA, Table 2). Based on a track record of consistent annual funding from the signatories, we have a high degree of certainty that funding will continue to be available to implement conservation actions identified in the 2015 CA for Goose Creek milkvetch.

8. An implementation schedule (including incremental completion dates) for the conservation effort is provided.

The 2015 CA identified conservation actions and provides an implementation schedule with explicit completion dates (Appendices 1 and 2). The two conservation actions for detecting and treating leafy spurge will occur on an annual or biennial basis within each BLM Field Office boundary.

9. The conservation agreement or plan that includes the conservation effort is approved by all parties to the agreement or plan.

The 2015 CA includes all the conservation actions agreed to by the respective parties and was signed by us and the BLM (Table 2).

Table 1. Parties to the 2015 CA and the respective signature dates.

Party	Approval/ Signature Date
BLM Elko District Office, Nevada	July 14, 2015
BLM Twin Falls District Office, Idaho	July 10, 2015

BLM West Desert District Office, Utah	July 10, 2015
Service Idaho State Office	June 26, 2015
Service Nevada State Office	July 1, 2015
Service Utah Field Office	July 14, 2015

Certainty that Conservation Measure will be Effective:

1. The Nature and Extent of the Threat is Addressed

The 2015 CNOR identified leafy spurge as a future threat to Goose Creek milkvetch. The two conservation actions identified in the 2015 CA to detect and treat leafy spurge and monitor the effectiveness of control methods are designed to significantly reduce the future impact of leafy spurge to Goose Creek milkvetch and its habitat.

Efforts to avoid and minimize impacts to Goose Creek milkvetch from leafy spurge are ongoing. Since 1999, the Idaho BLM has provided annual funding for the control of leafy spurge. In Idaho, known leafy spurge infestations are mapped and treated annually with chemical herbicides such as Tordon (Picloram) and Rodeo (Glyphosate) (GCCWMA 2001). Additionally, *Aphthona* flea beetles and leafy spurge stem borer are released in larger leafy spurge stands as an effective biological control (Edwards 2014, entire). The use and integration of these chemical and biological methods are highly effective in the control and treatment of leafy spurge and these methods are scientifically valid and supported in the scientific literature (Lym and Nelson 2002, p. 819; Belliston *et al.* 2009, p. 12).

In Utah, while leafy spurge control is being performed on an annual basis since 2004, leafy spurge treatment locations are not mapped and it is unclear whether all existing leafy spurge infestations are treated every year.

The ongoing commitment to annually treat leafy spurge is necessary for the long-term control of leafy spurge to be effective. It generally takes a minimum of eight consecutive years of treatment to eradicate leafy spurge (Selleck *et al.* 1962; Wolters *et al.* 1994). Under the 2015 CA, Idaho and Utah will continue to annually treat known infestations of leafy spurge for the 30 year duration of the CA. Leafy spurge does not currently occur in Goose Creek milkvetch habitat in Nevada; however, if leafy spurge is detected in Nevada, the same control measures will be initiated.

Efforts to address the spread of leafy spurge to new locations in Goose Creek milkvetch habitat are ongoing. In Idaho, survey for and treatment of new spurge infestations have occurred on a regular basis (Edwards 2014, entire). However, in Utah, surveys and treatment of new leafy

spurge infestations on BLM land have not been performed on a regular basis (Edwards 2014, entire). Under the 2015 CA, Idaho will continue to implement this measure and the commitment will expand to include Utah and Nevada. As a signatory to the 2015 CA, the Utah BLM has committed to survey and treat new leafy spurge infestations on a regular basis. This measure will ensure the early detection and treatment of new leafy spurge infestations in Goose Creek milkvetch habitat. Early detection and treatment of leafy spurge is important to reduce the direct effects of strong resource competition on the recruitment and reproduction of native plants (Palladini and Maron 2013; Lym 2015).

Efforts to monitor the effectiveness of leafy spurge control are ongoing. Since 1999, the Idaho BLM has evaluated the effectiveness of control methods. The chemical and biological methods currently used by the BLM in Idaho and Utah to treat leafy spurge are very effective (Lym and Nelson 2002; Belliston *et al.* 2009), and were successful in reducing the acreage containing leafy spurge in Idaho from 660 acres in 1999 to 14.3 acres in 2011 (Theodozio 2013, entire). Since 2007, the Idaho BLM has been monitoring the effectiveness of leafy spurge control in Goose Creek milkvetch habitat. Control efforts were effective in reducing the number of leafy spurge stems in Goose Creek milkvetch monitoring plots from 628 stems in 2007 to 43 stems in 2008 (Theodozio 2014, entire). The Utah BLM does not collect information to assess the effectiveness of leafy spurge control methods. Under the 2015 CA, the Idaho BLM will continue to implement this monitoring measure, and this monitoring commitment will expand to include the Utah BLM. The 2015 CA specifies that the Nevada BLM will implement the same measure if leafy spurge is detected there.

In summary, the nature and extent of the future threat from leafy spurge is addressed by the 2015 CA. The chemical and biological methods and frequency of leafy spurge treatment has been effective in preventing the expansion and dominance of leafy spurge in Goose Creek milkvetch habitat. As a result, current levels of leafy spurge are small in size and occupy only small portions of Goose Creek milkvetch habitat (Service 2008a, 17 pp.; Service 2013, pp. 1 - 3). Additionally, the commitment to survey and treat new infestations of leafy spurge within the species habitat will ensure the early detection and treatment of leafy spurge within the species' range. Due to the successful track record provided by the Idaho BLM since 1999 we are confident that under the 2015 CA the ongoing and expanded conservation efforts to control leafy spurge will be effective.

2. Incremental Objectives are Stated

We analyzed whether explicit incremental objectives for the conservation effort and dates for achieving components of the conservation effort are stated. This criterion is designed to ensure that, if information is incomplete, implementation can nevertheless proceed and move towards incremental objectives until the additional information is available at which time implementation can be modified in accordance with the new information (68 FR 15103; 15105-06).

To address leafy spurge infestations, the conservation actions contained in the 2015 CA identify the necessary steps for implementation and allow for modification based upon new information. Weed control planning and training of staff has already been implemented and additional training will be provided for new staff. Leafy spurge control will be performed on an annual basis for known infestations, and surveys for and treatment of new leafy spurge infestations will

be performed on an annual or biennial basis. Monitoring the effectiveness of leafy spurge control includes the following protocols a) installation of monitoring plots around leafy spurge plants in GCM occupied habitat; and b) counting the number of leafy spurge stems within the plot on a regular basis. Thus, the 2015 CA adequately states the incremental objectives for these actions.

3. Steps necessary for implementation are identified

Steps needed to implement the conservation actions are identified in the 2015 CA and outlined in Table 2.

Table 2. Steps necessary for implementation.

Conservation Action	Steps needed for Implementation
Formation of conservation team	Signatories designate a representative and attend annual meetings. This step is complete; the signatories have formed the conservation team.
Detect and control leafy spurge in Goose Creek milkvetch habitat	<p>Assess and prioritize areas for treatment and monitoring</p> <p>Treat noxious weeds</p> <p>Monitor results of treatment on target and non-target species</p> <p>Develop annual work plans to survey for new leafy spurge infestations</p>
Conservation team meeting and reporting	<p>Meet annually</p> <p>Provide annual reporting</p> <p>Review annual reporting</p> <p>Develop annual plan of work based on annual report to meet objectives of the 2015 CA</p> <p>Revise schedules and monitoring as needed</p>

4. Quantifiable, Scientifically Valid Parameters

We evaluated whether quantifiable, scientifically valid parameters that demonstrate achievement of objectives and standards by which progress will be measured are identified. The 2015 CA

conservation actions took into account the best available data on the species and the threats to the species to select appropriate conservation actions.

In order to evaluate whether achievement of the objectives of the 2015 CA are being met, the BLM will annually report on the two conservation actions we evaluate here as well as the other conservation actions in the 2015 CA.

The first conservation action: the annual treatment of leafy spurge by the BLM at known locations within GCM occupied habitat and monitoring to evaluate the effectiveness of control methods has quantifiable parameters including the number of leafy spurge infestations treated in a given year as well as the number of leafy spurge stems present in the effectiveness monitoring plots. Leafy spurge treatment areas will be quantified over the growing season, and the location and number of the treatment areas will be compared to known leafy spurge infestation locations on an annual basis. As stated above in criterion 1, the treatment methods used by the Idaho BLM are scientifically valid and supported by the scientific literature. Effectiveness monitoring for leafy spurge treatment methods by the Idaho BLM quantifies the number of leafy spurge stems in monitoring plots. This BLM monitoring protocol is measureable and consistent with established monitoring protocols for leafy spurge (Bourchier *et al.* 2006).

The second conservation action: Surveys that will be performed by the BLM to detect new invasions of leafy spurge in Goose Creek milkvetch habitat on an annual or biennial basis have quantifiable parameters regarding the size and location of the survey area and the number of new leafy spurge infestations that were found and treated during the survey.

Therefore, the 2015 CA and associated BLM protocol identifies quantifiable, scientifically valid parameters that will be incorporated into leafy spurge control to ensure the continued conservation of Goose Creek milkvetch.

The BLM will report all activities, including leafy spurge treatment and monitoring, and additional recommendations to the conservation team on an annual basis. This information will allow the conservation team to adaptively manage for the species' conservation over the duration of the 2015 CA.

5. Provision for monitoring

We evaluated whether provisions for monitoring and reporting progress on implementation (based on compliance with the implementation schedule) and effectiveness (based on evaluation of quantifiable parameters) of the conservation efforts identified in the 2015 CA are provided. As discussed in criterion 4, above, the 2015 CA will expand the existing leafy spurge monitoring efforts to all three States and cover the range of Goose Creek milkvetch. The Idaho BLM has a track record of monitoring leafy spurge in the species habitat since 2007 and the Idaho and Utah BLM have funded Goose Creek milkvetch monitoring since 2004. This monitoring will continue under the provisions of the 2015 CA. The conservation team will meet at least once annually to review the status of Goose Creek milkvetch, review the conservation strategy and conservation action schedules, and modify the strategy and conservation actions as appropriate. Based on past monitoring commitments from the BLM since 2004, we have a high certainty that the provisions for monitoring are adequate and that this monitoring will continue to be implemented under the 2015 CA.

6. Adaptive Management

We analyzed whether principles of adaptive management were incorporated into the 2015 CA. Operating under an adaptive management framework is essential for success of the conservation of Goose Creek milkvetch. Adaptive management is a decision process that promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Because of uncertainties associated with future environmental conditions and ground disturbing activities, conservation strategies need to be adaptable to address habitat changes and emerging threats and to take advantage of new information based on research findings, monitoring and the results of prior conservation efforts. Whether responding to the dynamics of climatic conditions and future disturbances or based on population responses to other conservation actions, adaptive management as it pertains to Goose Creek milkvetch conservation will be an ongoing activity at many levels.

At annual meetings, the conservation team will review and adjust annual work plans for monitoring and leafy spurge control in response to information from the previous years' activities and as described in the conservation team's annual reporting. The annual reporting on the accomplishments of conservation actions and the results of monitoring is the primary tool that will be used to base adaptive management decisions. We have therefore concluded that principles of adaptive management are incorporated into the two conservation actions identified in the 2015 CA.

Summary of Analysis for Conservation Measures

In summary, using the criteria in PECE (68 FR 15100, March 28, 2003), we evaluated the certainty of implementation (for those measures not already implemented) and effectiveness of conservation actions pertaining to leafy spurge control within Goose Creek milkvetch habitat. We have determined that the two conservation actions evaluated in this document provide for effective future detection and control of leafy spurge within the species' habitat.

We have a high degree of certainty that the measures will be implemented because the 2015 CA signatories have a track record of implementing conservation actions for Goose Creek milkvetch since 2004. The Idaho BLM has already implemented many conservation actions contained in the 2015 CA, including leafy spurge detection, treatment, and effectiveness monitoring.

The 2015 CA has sufficient annual monitoring and reporting requirements to ensure that all of the conservation actions are implemented as planned, and are effective at preventing or reducing future impacts to the majority of Goose Creek milkvetch plants and its habitat. The collaboration between the Service and the BLM requires regular conservation team meetings and involvement of all parties in order to fully implement the 2015 CA, and a process has been agreed upon by these entities to achieve these conservation efforts. Based on the previous implementation of these two conservation actions by the Idaho BLM, we have a high level of certainty that the two conservation actions we evaluated in the 2015 CA will be implemented in new geographic areas by the BLM in Utah and Nevada and that both will be sufficiently effective.

Conclusion

Using the criteria specified in PECE (68 FR 15100, March 28, 2003), we have evaluated the certainty of future implementation and certainty of effectiveness of leafy spurge detection, control, and monitoring as committed by the BLM under the 2015 CA. Based on our evaluation, we have determined that all of the PECE criteria have been satisfied. As such, we find that the two conservation measures in the 2015 CA to detect and control leafy spurge in Goose Creek milkvetch habitat and evaluate the effectiveness of control methods has a high level of certainty of future implementation and certainty of effectiveness, and can be considered as part of the basis for our final listing determination for Goose Creek milkvetch.

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**APPENDIX 1. Conservation actions in the Goose Creek milkvetch 2015 CA
(Excerpt from Table 1 in Final 2015 CA).**

Table 1. Conservation Actions to Address Threats, Potential Threats, and Research Needs for Goose Creek Milkvetch (GCM). The Actions implemented by all three BLM Field Offices will apply to all habitat on BLM lands (equivalent to 93% of the total habitat), unless specified otherwise next to an Action.

Threat and Associated Impacts	Conservation Action
Wildfire Management Planning and Firefighting Activities	
Plant Mortality & Habitat Degradation	<p>Goal: BLM fire suppression efforts will be conducted, as necessary, to protect GCM occupied habitat from fire on BLM lands. A high priority will be placed on protecting GCM occupied habitat from fire, and protecting the habitat from undue degradation from firefighting activities. Human life and safety, as well as property and improvements, will take priority over species protection in fire suppression activities.</p> <ol style="list-style-type: none"> 1. The BLM will include GCM populations and GCM occupied habitat on BLM fire operational planning maps and will regularly inform fire crews on suppression guidelines within and near these locations to maximize fire protection and avoid or minimize impacts from fire suppression activities. 2. A Resource Advisor, with knowledge of GCM, its habitat, and the conservation actions identified in this CAS, will be appointed to all fires within the range of GCM that have the potential to spread into GCM habitat to provide onsite guidance for the appropriate fire suppression actions 3. Surface disturbance will be avoided during fire-fighting related activities within GCM occupied habitat. This includes the construction of fire lines, fire breaks, access routes, and staging areas. A 300-foot (ft) minimum buffer between new disturbance and GCM occupied habitat will be maintained. Use of existing roads as fire breaks is encouraged, including those within 300 feet of GCM. Use of fire retardant will be avoided within 300 ft. <p>Exceptions to the 300-ft minimum buffer include the following:</p> <ol style="list-style-type: none"> a. Human life, property, and safety would be compromised by maintaining the 300-ft buffer; b. MIST (minimum impact suppression tactics) will be implemented within GCM occupied habitat to contain the fire at the smallest possible perimeter when the benefit of such activities to protect unburned GCM occupied habitat outweighs the impact by the surface disturbance. MIST is outlined in ACNWTC (2014). 4. The responsible BLM Field Office will notify the conservation team of the wildfire(s) and firefighting activities within GCM occupied habitat as soon as practicable to facilitate a post-fire evaluation by the conservation team. 5. The responsible BLM Field Office will provide all reporting documents regarding the wildfire(s) and firefighting activities within GCM occupied habitat to the conservation team by December 31 of that year, so that any actions or modifications that may be necessary can be incorporated into the following year's fire planning. 6. On BLM lands, prescribed broadcast burns are excluded within GCM occupied habitat. 7. BLM Field Office staff, in coordination with and agreement from the conservation team, will use an adaptive management process to examine and modify the actions identified here in order to accommodate changes necessary to improve the effectiveness of fire-fighting activities on BLM lands within GCM occupied habitat.
Fire Prevention Activities	
Plant Mortality & Habitat Degradation	<p>Goal: BLM fire prevention activities will be conducted to reduce the threat of fire within GCM occupied habitat and throughout the range of the species. A high priority will be placed on protecting GCM occupied habitat from fire.</p>

Threat and Associated Impacts	Conservation Action
	<p>8. Fuel breaks may be beneficial to reduce the spread of wildfire to GCM occupied habitat; however, there may be potential negative impacts to GCM because fuel breaks may facilitate weed dispersal. Use of existing roads as fire breaks is encouraged. BLM proposed fuel breaks within the GCM pollinator buffer (500meter (m) (1,640 ft)) will be discussed with the conservation team prior to implementation.</p> <p>9. New fuel breaks will be prohibited within GCM occupied habitat.</p> <ul style="list-style-type: none"> a. If new fuel breaks are planned within the pollinator buffer (500meter (m)(1,640 ft)) of GCM occupied habitat, targeted surveys to detect and control invasive species will be performed on a regular basis, see conservation action 33 for more details. b. The seeding or use of highly competitive, non-native species, such as crested wheatgrass (<i>Agropyron cristatum</i>), intermediate wheatgrass (<i>Thinopyrum intermedium</i>), and kochia species will not be used in fuel breaks within the pollinator buffer (500m (1,640 ft)) of GCM occupied habitat. The provisions of conservation action 40 will be implemented if exceptions or modifications are necessary. c. Where site specific modifications or conditions warrant changes to this conservation action, changes will occur in coordination with the conservation team. Any modification will include a documented rationale or justification. <p>10. The following restrictions for juniper removal will be followed if juniper encroachment within GCM occupied habitat is a concern: a) avoid the use of heavy equipment including bull-hogs within GCM occupied habitat; b) chainsaws and manual removal of trees are recommended; c) equipment will be cleaned prior to use to reduce the spread of weeds; e) timing of juniper removal will be considered to reduce the spread of noxious weeds post-treatment.</p> <p>11. Cheatgrass control by herbicide application or other methods will be considered within GCM occupied habitat and the pollinator buffer (500m (1,640 ft.)) if and when the level of cheatgrass significantly increases the risk of wildfire or habitat alteration. Control methods and monitoring will be developed by the BLM in coordination with the conservation team.</p>

**Emergency Stabilization
And Rehabilitation (ES&R)**

Plant Mortality,
Habitat Degradation &
Introduction of Non-Native,
Highly Competitive Vegetation

- Goal:** BLM ES&R activities will be conducted to maintain or improve the habitat condition within GCM occupied habitat and the pollinator buffer (500m (1,640 ft)). A high priority will be placed on protecting GCM occupied habitat from surface disturbance. Natural colonization of the native plant community is generally preferred when post-fire survival of native perennial bunchgrasses is high.
- 12. The BLM will include GCM populations, GCM occupied habitat, and GCM pollinator buffer on ES&R planning maps and regularly inform ES&R crews and new staff on the conservation actions within this CAS for GCM occupied habitat and the pollinator buffer.
 - 13. The Resource Advisor and others (botanist, biologists, range specialists, etc.) will provide recommendations for ES&R actions based upon the burn area evaluation, GCM habitat condition, and the predicted seeding success. Coordination with the conservation team is recommended for ES&R activities in GCM occupied habitat, as soon as practical.
 - 14. Within GCM occupied habitat, the use of aerial seeding only (without accompanying soil surface disturbance activities) , back-pack seeders, and hand planting will be utilized to reduce surface disturbance from seeding activities.
 - 15. Within GCM occupied habitat, drill seeding is prohibited. Exceptions will be considered if drill seeding may be beneficial to reduce another threat to GCM. Where site specific modifications or conditions warrant drill seeding within GCM occupied habitat, the BLM ES&R personnel will notify the conservation team. Drill seeding within GCM occupied habitat will require a rationale for the benefits of drill seeding as well as a monitoring and adaptive management plan that is developed by the BLM in coordination with the conservation team.
 - 16. Within the GCM pollinator buffer (500m (1,640 ft)), drill seeding is permitted. GCM occupied habitat will be flagged and clearly visible prior to drill seeding activities so drill
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Threat and Associated Impacts	Conservation Action
	<p>seeding activities do not occur within GCM occupied habitat. Equipment operators will have GPS polygons delineating GCM occupied habitat to avoid them. A biological monitor (which includes trained personnel familiar with GCM) is required to be on-site during drill-seeding activities within the pollinator buffer to ensure compliance.</p>
	<p>17. For seed mix recommendations in GCM occupied habitat, see conservation action 38.</p>
	<p>18. For seed mix prohibitions in GCM occupied habitat, see conservation action 39.</p>
	<p>19. For seed mix recommendations in GCM pollinator buffer, see conservation action 40.</p>
	<p>20. Within GCM occupied habitat, leafy spurge treatment 2 times per year is recommended for post-fire year 1, 2, and 3. See conservation actions 24 – 30 for more details about on-going leafy spurge control recommendations.</p>
	<p>21. Within GCM occupied habitat, BLM will protect disturbed and recovering areas by using temporary fencing or other methods of no livestock use (reductions, pasture rotations, etc.) to minimize disturbance to GCM occupied habitat and to ensure vegetation treatments are successfully established. BLM will continue to rest areas from time of the wildfire to at least 2 growing season following the fire from land use activities or until ES&R objectives are met. Any scientifically valid objectives or criteria specific to GCM that are developed in the future will be incorporated into this action.</p>
	<p>22. The BLM Field Office will provide all reporting documents to the conservation team regarding the ES&R activities within GCM occupied habitat and pollinator buffer by December 31 of that year.</p>
	<p>23. BLM Field Office staff, in coordination with and agreement from the conservation team, will use an adaptive management process to modify the actions identified here in order to accommodate changes necessary to improve the effectiveness of ES&R activities within GCM occupied habitat.</p>

Noxious Weeds

<p>Non-Native, Introduced Plant Species: Leafy Spurge</p>	<p>Goal: Leafy spurge control will be conducted throughout the range of GCM through integrated pest management (chemical, biological, mechanical, and manual control methods). A high priority will be placed on controlling leafy spurge within GCM occupied habitat.</p>
	<p>24. The BLM will include GCM populations and GCM occupied habitat on leafy spurge weed control planning maps and regularly inform weed crews and new staff on the conservation actions within this CAS.</p>
	<p>25. Annual funding of leafy spurge control will be prioritized and actively pursued by the BLM at each respective field office. Leafy spurge within GCM occupied habitat will be a high priority for treatment.</p>
	<p>26. Effective BLM approved chemical and biological methods will be used to control leafy spurge within GCM occupied habitat as identified in the Vegetation Treatments Using Herbicides Programmatic EIS (BLM 2007) or other BLM District specific vegetation treatments plans.</p>
	<p>27. The BLM in Idaho and Utah will closely coordinate with Cassia County and Box Elder County in the treatment and monitoring of leafy spurge in the Goose Creek drainage. The BLM will remain an active partner in established weed management areas (WMAs): Goose Creek, Raft River, Elko County, and Tri State WMAs.</p>
	<p>28. On BLM lands, leafy spurge control will occur on an annual basis at known locations within GCM occupied habitat and adjacent areas in ID, NV, and UT, as funding allows.</p>
	<p>29. For post-fire leafy spurge control, see conservation action 20.</p>
	<p>30. Within one year of signing the CAS, BLM staff in coordination with the conservation team will develop a schedule of repeated surveys in GCM occupied habitat to detect new invasions of leafy spurge or other invasive species, as well as monitor leafy spurge treatment effectiveness within GCM occupied habitat. Leafy spurge surveys and monitoring within GCM occupied habitat can be incorporated as part of range-wide monitoring, see conservation action 62.</p>
	<p>a. The schedule of repeated surveys for new leafy spurge infestations will ensure that surveys will be performed within GCM occupied habitat on an annual or</p>

Threat and Associated Impacts	Conservation Action
	<p>biennial basis within each BLM Field Office</p> <p>b. Until additional monitoring protocols are developed in coordination with the conservation team, the BLM will implement the existing leafy spurge monitoring protocols from the Idaho BLM which include: a) installation of monitoring plots around leafy spurge plants in GCM occupied habitat; b) counting the number of leafy spurge stems within the plot on a regular basis.</p> <p>31. BLM Field Office staff, in coordination with and agreement from the conservation team, will use an adaptive management process to examine and modify the actions identified here in order to accommodate changes necessary to improve the effectiveness of weed control activities within GCM occupied habitat.</p>
Noxious Weeds	<p>Goal: Weed control will be conducted within GCM occupied habitat through integrated pest management (chemical, biological, mechanical, and manual control methods). A high priority will be placed on controlling weeds within GCM occupied habitat. A proactive approach is recommended to monitor invasions in nearby areas and to select the appropriate treatment methods for GCM.</p> <p>32. The BLM will include GCM populations and sites on weed control planning maps and regularly inform weed crews and new staff on the conservation actions within this CAS and more recent treatment protocols for GCM occupied habitat.</p> <p>33. Within 1 year of signing the CAS, BLM staff and the conservation team will develop a schedule of repeated surveys in GCM occupied habitat to detect new invasions of weeds in addition to leafy spurge, see conservation action 30. Weed surveys and monitoring within GCM occupied habitat can be incorporated as part of the range-wide monitoring, see conservation action 62.</p> <p>34. As invasions of noxious weeds occur within GCM occupied habitat and the presence and or density of such weeds is determined to be a risk to GCM habitat, BLM staff will develop treatment protocols that identify treatment options as appropriate for each known weed species and the most appropriate control methods within GCM occupied habitat, in coordination with the conservation team, and as identified in the Vegetation Treatments Using Herbicides Programmatic EIS (BLM 2007) or other BLM District specific vegetation treatments plans.</p> <p>The BLM and conservation team will develop a monitoring protocol to evaluate the effectiveness of control methods within GCM occupied habitat. This will occur on an as needed basis. The BLM will provide weed control and weed invasion updates to the conservation team on an annual basis.</p> <p>35. Until additional treatment protocols are developed in coordination with the conservation team, the BLM will implement the following measures within GCM occupied habitat: a) herbicide treatments are limited to back-pack sprayers, animal-pack sprayers or ATV/UTV sprayers; and b) ATV/UTV use on steep slopes or Salt Lake Formation “ashy” outcrops within GCM occupied habitat will be prohibited.</p> <p>36. The BLM Field Offices, in coordination with the conservation team, will use an adaptive management process to examine and modify the treatment methods to accommodate changes necessary to improve the effectiveness of weed control activities within GCM occupied habitat.</p> <p>37. When and where feasible, the BLM will cooperate to control noxious weeds in established cooperative weed management programs.</p>
Seeded Grasses and Wildflowers	<p>Goal: The use of native forbs in seed mixtures, with a variety of blooming times, and preferably found within the range and GCM occupied habitat, is encouraged in order to benefit GCM insect pollinators and pollinator enhancement in restoration projects. Seeding should only be used when there is a documented high mortality of native grasses and forbs, or a documented need to improve diversity within GCM occupied habitat or the pollinator buffer.</p> <p>38. Within GCM occupied habitat, the BLM will use native forbs and grasses in seed mixtures as needed. Native plants and seeds that originate from local sources and/or from existing provisional seed zones for target native species are preferred. If native plants are not available, non-highly competitive, non-native or native cultivar plant species will be used.</p>

Threat and Associated Impacts	Conservation Action
	<p>39. Within GCM occupied habitat, the BLM will exclude the seeding of highly competitive, non-native plant species including crested wheatgrass (<i>Agropyron cristatum</i>), intermediate wheatgrass (<i>Thinopyrum intermedium</i>), and kochia species. The seeding density of non-native grasses should be calibrated based upon the native grass survival so not to exceed the target or pre-disturbance grass canopy cover of the site.</p> <p>40. Within the GCM pollinator buffer (500m (1,640 ft)), the guidance identified for conservation actions 38 and 39 will generally apply. Exceptions to the exclusion of seeding highly competitive, non-native plant species including crested wheatgrass (<i>Agropyron cristatum</i>), intermediate wheatgrass (<i>Thinopyrum intermedium</i>), and kochia species within the pollinator buffer will be considered where site specific modifications or conditions warrant their use such as the potential for burned areas to convert to a cheatgrass monoculture. The BLM will notify the conservation team if the use of these plant species is necessary. Additional monitoring and control measures may be incorporated into the project design, as recommended by the conservation team. Control measures will be informed by monitoring and based upon thresholds or triggers that are exceeded.</p> <p>41. For seeding techniques in GCM occupied habitat and pollinator buffer (500m (1,640 ft)), see conservation actions 14 – 16.</p> <p>42. BLM Field Office staff, in coordination with and agreement from the conservation team, will examine and modify the actions identified here in order to accommodate changes necessary to improve the effectiveness of ES&R and other restoration activities within GCM occupied habitat.</p>
Livestock Grazing on BLM-Managed Lands	<p>Goal: The BLM will manage livestock grazing and trailing to conserve GCM and GCM occupied habitat and use available data to ensure all livestock management practices and operations (e.g., grazing intensity, distribution, confinement, location of salt, and range improvements) will be implemented in a way that does not negatively impact GCM.</p> <p>43. The BLM will inform grazing permittees of the need to manage for GCM conservation. Information on GCM, GCM occupied habitat, and maps to aid permittees in understanding where GCM occurs and the appropriate management techniques for GCM occupied habitat will be developed and provided within 1 year following the signature of this CAS, and as needed thereafter.</p> <p>44. The following BLM grazing management practices will be incorporated during project planning (NEPA).</p> <ol style="list-style-type: none"> a. Locate new water sources, pipelines, and other range improvements outside of GCM occupied habitat, and at least ¼ mile (402.3 m / 1,320 ft) away from GCM occupied habitat to protect the habitat and plant pollinators. New water troughs will be placed so that livestock are drawn away as needed from GCM occupied habitat and concentrated livestock use areas are outside of GCM occupied habitat. Where site specific modifications or conditions warrant changes to this distance, BLM staff will notify the conservation team. Any modification to this distance will include a documented rationale or justification. b. Locate new fences outside of GCM occupied habitat and in a manner so that livestock use is concentrated outside of GCM occupied habitat. Post-fire, the planning and installation of new fence lines to keep livestock out of burned areas will be aligned to exclude livestock within burned GCM occupied habitat. Unburned GCM occupied habitat that is near or adjacent to the planned fence line should be considered in the planned alignment so that livestock use is not concentrated within the unburned GCM habitat near the fence line. c. Mineral supplements will be located at least ¼ mile (402.3 m / 1,320 ft) away from occupied habitat. Where site specific modifications or conditions warrant changes to reduce this distance, BLM staff will notify the conservation team. Any modification will include a documented rationale or justification. This action may require the modification of existing livestock grazing permits and

Threat and Associated Impacts	Conservation Action
	<p>will be incorporated into existing permits as soon as practical, no later than the next permit renewal. The BLM currently has the authority under 43 C.F.R. part 4100 section 4110 3-3b to modify existing grazing permits or modify authorized grazing use following BLM documentation that identifies an imminent likelihood of significant resource damage.</p>
	<p>d. BLM staff will inspect proposed fence-lines, water troughs, pipelines, and other range improvement projects to ensure their installation will not concentrate livestock in GCM occupied habitat. Following installation, BLM staff will inspect livestock use in adjacent GCM occupied habitat to verify livestock are avoiding and not concentrated inside GCM occupied habitat and make adjustments as needed to ensure livestock is not concentrated in GCM occupied habitat.</p>
	<p>e. BLM staff will provide annual updates to the conservation team regarding new or proposed range projects within the GCM pollinator buffer (500m (1,640 ft)) or GCM occupied habitat.</p>
	<p>45. The BLM will ensure no new livestock trails or piospheres are established through their management actions within GCM occupied habitat. If through management actions, new trails develop that are negatively impacting habitat as determined by monitoring, effective measures will be utilized to close these new trails and direct trailing outside of the habitat. These measures will be made on a site-specific basis by the BLM in coordination with the conservation team. Measures may include installation of temporary fencing prior to the next use period, and permanent fencing at problem areas to redirect trailing. Following any management action implementation, BLM staff will inspect the site to evaluate the effectiveness of the measure and adjust as necessary to ensure new trails and piospheres are not established within GCM occupied habitat. Updates on these actions will be provided to the conservation team. See conservation action 48 for schedule details.</p>
	<p>a. The BLM will exclude livestock from one site, U001-6-1, in Utah where livestock trails were established within a Salt Lake Formation "ashy" outcrop after the 2007 wildfires. A monitoring plan will be developed for this site no later than 1 year following the signature of this CAS. This site will be fully fenced before livestock turnout 2015 and no later than May 1, 2015. This site is approximately 8 acres. This action area includes <1% of GCM occupied habitat.</p>
	<p>46. The BLM will adjust livestock use within GCM occupied habitat after major disturbances to provide adequate rest from grazing if necessary. Major disturbances include fire, post-fire ES&R activities, drought, or other soil-disturbing activities, see conservation action 21 for more details.</p>
	<p>a. BLM staff will perform spot checks within GCM occupied habitat where livestock adjustment is necessary to ensure livestock use is in compliance with BLM guidance. For the duration of the livestock closure after a fire, spot checks will be performed a minimum of 2 times a year, preferably on a regular basis throughout the adjustment period. Spot checks for compliance after other disturbances will be performed a minimum of 1 time per year, preferably on a regular basis throughout the adjustment period. The BLM will provide details regarding the adjustment period such as target criteria and the results of their evaluation to the conservation team.</p>
	<p>47. Within one year of signing the CAS, the BLM in coordination with the conservation team will incorporate photo monitoring within existing or new Goose Creek monitoring sites to monitor the establishment of new livestock trails and piospheres. This can be incorporated as part of the range-wide monitoring; see conservation action 62.</p>
	<p>48. The BLM and the conservation team will review the livestock monitoring schedule annually, and update as necessary.</p>
Mining and Energy Development	
Habitat Loss or Fragmentation	<p>49. While mining or energy development is not currently occurring within GCM occupied habitat, the BLM will notify the conservation team of any new mineral exploration permit applications or requested lease parcels in GCM occupied habitat, within the GCM</p>

Threat and Associated Impacts	Conservation Action
	<p data-bbox="597 254 1133 275">pollinator buffer, or between GCM Element Occurrences.</p> <p data-bbox="550 289 1430 384">50. In Idaho, Nevada, and Utah the BLM will will develop a lease notice for the species and include avoidance and minimization measures to survey for plants and implement a 500m (1,640 ft) buffer between surface disturbing activities and plants. This action area includes 93% of GCM occupied habitat.</p> <p data-bbox="550 394 1430 537">51. Each BLM Field Office will keep track of the area and location of surface disturbance within the GCM pollinator buffer from mining and energy development and report that annually to the conservation team. The BLM and the conservation team will continue to review mining and energy development activity and update the conservation actions and the avoidance buffer when additional action is necessary to protect GCM from habitat loss and fragmentation.</p>
<p data-bbox="188 558 423 615">Inadequacy of Existing Regulatory Mechanisms</p>	
<p data-bbox="188 632 469 653">Lack of range-wide protection</p>	<p data-bbox="550 632 1430 705">52. The BLM will assume primary responsibility for implementation of specific conservation actions to protect GCM and GCM occupied habitat and to ensure the species persists on BLM Lands.</p> <p data-bbox="550 716 1430 789">53. The BLM will retain GCM on the BLM Special Status Species list to ensure that analyses are conducted to determine effects of planned projects to GCM and GCM occupied habitat.</p> <p data-bbox="550 800 1430 957">54. The BLM will ensure that ongoing and future federal actions support or do not preclude the species' conservation. The BLM will involve the USFWS and appropriate state agencies in NEPA analysis as cooperators or partners for all projects likely to affect GCM and GCM occupied habitat. All new projects not specifically considered in this CAS that are proposed in GCM occupied habitat or the GCM pollinator buffer (500m (1,640 ft)) will be evaluated under NEPA for their potential to impact GCM with input from the conservation team.</p> <p data-bbox="646 968 1430 1293">a. Surveys for GCM will be performed by a qualified personnel trained in the identification of GCM and its habitat. A 91.4 m (300 ft) minimum buffer between new disturbance and GCM occupied habitat will be maintained. Use of existing roads, including those within 91.4 m (300 feet), is encouraged. If the proposed action cannot be moved to avoid the plants, additional conservation measures may be necessary to offset the impacts to the species. These conservation measures will depend upon the project impacts to GCM and may include the following: flagging of plants and avoidance areas prior to construction; on-site biological monitors to ensure compliance with avoidance areas; dust abatement during construction; plant salvage and successful propagation of the species to be reintroduced to the project site; and post-construction monitoring. These conservation measures will be developed by the BLM in coordination with and agreement from the conservation team.</p> <p data-bbox="550 1304 1430 1377">55. The BLM will ensure that site specific implementation of management actions will be updated and adjusted as needed based upon monitoring results and adaptive management recommendations to ensure that management objectives are met.</p> <p data-bbox="550 1388 1430 1671">56. The BLM will incorporate the provisions of this CAS into agency planning documents, permitting requirements, and budgets.</p> <p data-bbox="646 1440 1430 1535">a. Within 4 months of the signature date of the CAS, the BLM will incorporate the provisions of this plan into their work activities and in any new permits. This timeframe also applies to all planning actions identified in the wildfire management, fire fighting, ES&R, leafy spurge, and noxious weed sections.</p> <p data-bbox="646 1545 1430 1619">b. These provisions will be incorporated into existing livestock grazing permits as soon as practical, no later than the next permit renewal. This applies to the mineral supplement action, see 44c.</p> <p data-bbox="646 1629 1430 1671">c. These provisions will be incorporated into future federal actions and permits through the duration of the CAS.</p> <p data-bbox="550 1682 1430 1755">57. The BLM will consider land exchanges with state and private landowners to expand protection of GCM occupied habitat to facilitate the long-term persistence and recovery of the species when possible.</p> <p data-bbox="550 1766 1430 1860">58. The BLM will sustain the health of the GCM population by managing for a "no net loss of habitat" for GCM. This includes the retention of GCM occupied habitat currently under BLM management. Due to its restricted distribution, the loss of GCM occupied habitat should be considered detrimental to the long-term conservation of the species.</p>

Threat and Associated Impacts	Conservation Action
	59. The BLM will continue to coordinate with the USFWS, permittees, interested parties, and the public on the conservation of GCM.
Small Population Size	
Vulnerability to Stochastic events	60. The BLM and the conservation team will coordinate seed collections in all areas and for multiple years where the species is present (with landowner approval), in accordance with USFWS and Center for Plant Conservation (CPC) guidelines, for placement in storage at Red Butte Garden and the National Center for Genetic Resources Preservation. The BLM will implement or fund seed collections, as staff time and funding is available. This effort can be incorporated as part of range-wide monitoring, see conservation action 62.
Climate Change	
Mortality caused by drought	61. As part of range-wide monitoring of the species, a component will be included to study the relationship between precipitation patterns and species' growth, reproduction and recruitment, and mortality. This may be accomplished by utilizing existing weather stations or establishing weather-monitoring equipment at existing long-term monitoring sites. This effort will be incorporated as part of range-wide monitoring, see conservation action 62.
Research Needs	
Range-wide Monitoring	<p>62. Within one year of signing the CAS, the BLM and the conservation team will expand existing monitoring efforts across the range of the species in order to implement range-wide monitoring for the species to determine trends in plant populations and evaluate habitat condition. Existing monitoring protocols (as described below in Monitoring and Adaptive Management) will be used and may be adjusted to ensure the data collection and sampling area is consistent across the range of the species. Existing monitoring sites will be utilized and additional monitoring sites will be established to ensure that a representation of all the EOs is monitored. One or two monitoring site(s) will include demographic monitoring to determine basic life history characteristics of GCM on both Salt Lake Formation "ashy" outcrops and sandy soils. A monitoring schedule will be developed to identify when monitoring sites will be visited. The range-wide monitoring may also incorporate additional monitoring of invasive weeds, livestock use, plant succession as well as seed collection.</p> <p>a. In Utah, EO 003 is on BLM land, but is land locked with a private land owner not allowing access to federal and state officials in this area for the past 9 years. BLM will continue to work with the land owner to obtain access to this EO for monitoring and management purposes.</p> <p>63. The BLM and the conservation team will prioritize areas of GCM potential habitat to survey. The BLM will survey potential habitat depending upon staff availability and/or the availability of funds. Survey results will be provided to the conservation team. All data will be submitted to the respective State Natural Heritage programs for inclusion in their databases.</p> <p>64. The BLM and the conservation team will prioritize research projects to study the basic biology of GCM and other research essential to the species' conservation. Research topics to consider include pollinators and plant breeding system, pollinator habitat restoration and enhancement, and the species' response to ground disturbance. Research projects will be dependent upon availability of funds.</p>
Cumulative Effects of the Above	
	65. Addressing the threats and potential threats above independently will prevent these threats from acting cumulatively.

APPENDIX 2. Implementation schedule for conservation actions in the Goose Creek milkvetch 2015 CA (Excerpt from Final 2015 CA).

14. APPENDICES

Appendix 1. Timing, Funding, and Implementation Responsibilities of Conservation Actions in this CAS

Conservation Action(s)	Action Item #	Action Item Description	Party	Approximate Cost	Time Period
Wildfire Management & Firefighting	1	Include Goose Creek milkvetch habitat on ES&R planning maps and inform ES&R crews and new staff on the conservation actions within this CAS	BLM	In-kind labor and materials	2015
	2	A BLM Resource Advisor, with knowledge of Goose Creek milkvetch and the Actions in this CAS, will be appointed to all fires with the potential to spread to the habitat.	BLM	In-kind labor and materials	As Needed
	6	Prescribed burns are prohibited within Goose Creek milkvetch habitat	BLM	In-kind labor and materials	2014 - Ongoing
Fire Prevention Activities	8	Planned fuel breaks will be prohibited in Goose Creek milkvetch habitat. New fuel breaks in the pollinator buffer will be monitored for weeds, and highly competitive, non-native species will not be used within the pollinator buffer.	BLM	Variable	As needed
	9	Juniper removal in Goose Creek milkvetch habitat, and restrictions	BLM	Variable	As needed

Conservation Action(s)	Action Item #	Action Item Description	Party	Approximate Cost	Time Period
Emergency Stabilization and Rehabilitation (ES&R)	12	Include Goose Creek milkvetch habitat on ES&R planning maps and inform ES&R crews and new staff on the conservation actions within this CAS	BLM	In-kind labor and materials	2015
	16	For any drill seeding activities in the pollinator buffer, Goose Creek milkvetch habitat will be flagged for avoidance, a biological monitor will be on site during drill seeding, and equipment operators will have GPS polygons of Goose Creek milkvetch habitat.	BLM	Variable	As Fires Occur
	21	The BLM will protect disturbed or recovering areas of Goose Creek milkvetch habitat to ensure any ES&R treatments are successful.	BLM	Variable	As Fires Occur
Noxious Weeds	24, 32	Include Goose Creek milkvetch habitat on weed control planning maps and inform weed crews and new staff on the conservation actions within this CAS	BLM	In-kind labor and materials	2015
	25, 28	Leafy spurge control will be prioritized for funding and treatment on an annual basis in Goose Creek milkvetch habitat.	BLM ID BLM UT	\$20,000 - \$40,000 per year	2014 - Ongoing
	30	Develop a schedule of repeated surveys in Goose Creek milkvetch habitat to detect new invasions of leafy spurge or other invasive species, as well as monitor leafy spurge treatment effectiveness.	Signatories	In-kind labor and materials	2015

Conservation Action(s)	Action Item #	Action Item Description	Party	Approximate Cost	Time Period
	34	Develop treatment for weed species and the most appropriate control methods within GCM occupied habitat, in coordination with the conservation team.	BLM	In-kind labor and materials	As needed
	34	The BLM and conservation team will develop a monitoring protocol to evaluate the effectiveness of control methods within GCM occupied habitat. This will occur on an as needed basis.	Signatories	In-kind labor and materials	As needed
Livestock Use	43	Inform grazing permittees of the need to manage for Goose Creek milkvetch conservation. Provide information and maps.	BLM	In-kind labor and materials	2015
	45.a	Exclude livestock from on Salt Lake Formation “ashy” outcrop in order to address concentrated livestock trampling from fire fence installation	UT BLM ONLY		By May 1, 2015
	47	Develop livestock use monitoring schedule	Signatories	In-kind labor and materials	2015
Land acquisition	58	Strive to acquire Goose Creek milkvetch habitat	BLM	Unknown	As opportunities arise

Conservation Action(s)	Action Item #	Action Item Description	Party	Approximate Cost	Time Period
Long-term monitoring	62	Expand existing monitoring	Signatories	In-kind labor and materials or contract funding if available	2014 – 2015
	62	Implementation of Range-wide monitoring	BLM	In-kind labor and materials or contract funding if available	2015 - Ongoing
Survey	63	Survey suitable habitat for Goose Creek milkvetch as needed.	BLM	Variable TBD	As needed or as projects arise within the range of Goose Creek milkvetch
Studies and scientific research	64	Secure funding for and participate in research essential to conservation of Goose Creek milkvetch	Signatories	Variable TBD	As funding and opportunities are available
Reporting	5, 22	Provide all fire and ES&R reporting documents to the conservation team	BLM	After a fire	Ongoing
Adaptive Management	7, 23, 31, 36, 42, 48, 51	Examine and modify actions to accommodate changes necessary to improve their effectiveness	Signatories	In-kind labor and materials	2015 - Ongoing