

**Task Agreement Number P15AC00680**  
Under  
Cooperative Agreement P14AC00921  
Between  
The United States Department of the Interior  
National Park Service  
And  
Colorado Natural Heritage Program  
DUNS No: 785979618  
Colorado State University  
1475 Campus Delivery  
Fort Collins, CO 80523-1474

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CFDA: 15.945

Project Title: Field Surveys, Monitoring, and Data Development for Special Status Plants in Mesa Verde National Park, Montezuma County, Colorado - 2015

Park Unit: Mesa Verde National Park

PI: Jill Handwerk, Botany Team Leader, Colorado Natural Heritage Program, Colorado State University, 1475 Campus Delivery, Fort Collins, CO 80523-1474, Tel.: 970-491-5857, Fax.: 970-491-3349, Email: [Jill.Handwerk@colostate.edu](mailto:Jill.Handwerk@colostate.edu)

ATR: George L. San Miguel, Natural Resource Manager, Mesa Verde National Park, PO Box 8, Mesa Verde CO 81330, Tel.: 970-529-5069, Email: [george\\_san\\_miguel@nps.gov](mailto:george_san_miguel@nps.gov)

Amount of Federal Funds Obligated: \$16,712

Total Amount of Task Agreement Award: \$16,712

Funding source: ONPS base funding for MEVE Natural Resource Management  
PPIMMEVE6G PPMRSNR1Z.NI0000

Period of Performance: May 1, 2015 to May 31, 2016

Student Involvement: No

Sensitive Information: No, the final report is not sensitive, but the geographic data associated with the project should remain confidential.

## **ARTICLE I – BACKGROUND AND OBJECTIVES**

Cooperative Agreement Number P14AC00921 was entered into by and between the Department of the Interior, National Park Service, (NPS), and Colorado Natural Heritage Program (hereafter referred to as ‘Recipient’) for the purpose of providing research, technical assistance, and/or education, as described below. Unless otherwise specified herein, the terms and conditions as stated in the Cooperative Agreement will apply to this Task Agreement.

For performance under this task agreement, the regulations set forth in 2 CFR, Part 200, supersedes OMB Circulars A–21 (2 CFR 220), A–87 (2 CFR 225), A–110, and A–122 (2 CFR 230); Circulars A–89, A–102, and A–133; and the guidance in Circular A–50 on Single Audit Act follow-up. The recipient shall adhere to 2 CFR, Part 200 in its entirety in addition to any terms and conditions of the master agreement not superseded by 2 CFR 200, as well as the terms and conditions set forth in this agreement. In the event of a conflict between the original terms of the master agreement and 2 CFR, Part 200, relating to this task agreement, 2 CFR, Part 200 shall take precedence.

***Project Title:*** Field Surveys, Monitoring, and Data Development for Special Status Plants in Mesa Verde National Park, Montezuma County, Colorado - 2015

### Project Description:

The CNHP has been monitoring *A. schmolliae* at MEVE intermittently since 2001. The two primary components of this monitoring program are demography plots and belt transects. Demography plots were established in 2003 at four locations on Chapin Mesa. Results from re-sampling demography plots indicate an overall pattern of decline in number of individuals in two plots and an increase in one. However, the design of the demography plots is unbalanced, with three burned plots and one unburned, and sampling has not been consistent over the years due to access and approach times. Therefore a redesign of the demography plots is recommended.

A total of 43 belt transects were established and sampled in 2001 on Chapin Mesa. The following year, the Long Mesa Fire burned 17 of the transects, which allowed CNHP to examine the effects of fire on the population. CNHP sampling data from 2003, 2011, and 2012 indicate an overall decline in density. However, in 2013 density levels were extremely high, and for the first time in CNHP sampling history were above the 2001 levels for this species. In 2014, dry conditions resulted in extremely low density (415 total individuals vs. 3,970 in 2013). Results from a regression model indicate that Chapin Mesa milkvetch densities are correlated with winter precipitation. Installation of soil moisture sensors and data loggers along the transects would provide additional insight to this correlation. Further, a seventh year of monitoring will add a larger sample size to the data set to further elucidate relationships between precipitation and Chapin Mesa milkvetch.

As part of this agreement with MEVE, CNHP will complete the four following objectives: 1) resample 43 belt transects, 2) resample the original Sun Point and Sun Temple demography plots as they are quick to navigate to and have existing data, 3) create 20 new demography plots on existing belt transects to capture life history data and phenology trends (10 in burned and 10 in unburned), 4) install six soil moisture sensor/logger sets in new demography plots on Chapin Mesa (three in burned and three in unburned), 5) provide a written report and photos detailing findings to MEVE staff. CNHP asserts that collecting data from these plots and transects for a seventh year will allow for the continued building of a long-term data set for Chapin Mesa milkvetch density and population status on Chapin Mesa.

The results of this study will add to the body of knowledge about the state of Colorado's rare plant ecology and help the CNHP meet its goal of conserving these resources for the people of the state. CNHP BIODIVERSITY database is a source of information for the scientific community. The results of CNHP's work are valued for the advancement of technical ecological knowledge that is spread to the scientific and natural resource conservation communities. The ATR/project manager will ensure that the results of the study are shared with the neighboring Ute Mountain Ute Tribe, which is the only other entity that has jurisdiction over Mesa Verde's rare plant species including the Chapin Mesa milkvetch.

## **ARTICLE II – LEGAL AUTHORITY**

54 U.S.C §101702(a) Cooperative Agreements, Transfer of Service Appropriate Funds

54 U.S.C. §101702(b) Cooperative Agreements, Cooperative Research and Training Programs

54 U.S.C. §100703 Cooperative Study Units

## **ARTICLE III – STATEMENT OF WORK**

A. Statement of work:

Mesa Verde National Park (MEVE) contains the largest documented population of Chapin Mesa milkvetch (*Astragalus schmolliae*), a globally rare plant species. Chapin Mesa milkvetch is among the rarest of Colorado's endemic plant species. Its global distribution is constrained almost entirely to Chapin Mesa within MEVE and the Ute Mountain Tribal Park, with small outlying populations on neighboring Park Mesa east of Chapin Mesa in MEVE, and from the West Chapin Spur. The density of the population has varied over time and is tightly correlated with winter precipitation (CNHP, in prep). It is considered critically globally imperiled (G1) by the Colorado Natural Heritage

Program (CNHP), and has recently been included among candidates for listing under the Endangered Species Act in a twelve-month finding for a listing petition (U.S. Fish and Wildlife Service 2010).

### **Objectives**

To gather additional life history information on Chapin Mesa milkvetch, CNHP will complete the following tasks regarding Chapin Mesa milkvetch population monitoring: 1) resample 43 belt transects, 2) resample the original Sun Point and Sun Temple demography plots, 3) create 20 new demography plots on existing belt transects, 4) install six soil moisture sensor data logger sets in new demography plots on Chapin Mesa, 5) provide a written report and photos detailing findings to MEVE staff.

The resulting data set will enable MEVE to manage existing and potential threats to its rare plant species and to coordinate rare plant stewardship with general park operations such as fire management and weed control. This data will also be available from CHNP to interested researchers by request, minus sensitive locational data from inside MEVE.

### **Methods**

Chapin Mesa milkvetch monitoring will be conducting in the late spring of 2015. CNHP staff will coordinate with MEVE staff to determine the most appropriate phenological window to conduct sampling. A total of 43 belt transects covering 4,067 meters will be sampled. These were originally sampled in 2001 (Anderson 2004). Subsequent sampling years were 2003, 2011, 2012, 2013, and 2014. Each transect is oriented in an east-west direction, traversing Chapin Mesa. The transects are 10 meters wide and spaced 500 meters apart following UTM northing lines projected in NAD 27 Datum, Zone 12T. Each belt transect is broken into 100m x 10m segments. Within each segment, a census of the Chapin Mesa milkvetch individuals will be recorded. To avoid deviating from the UTM northing line, CNHP staff will use a Trimble or Garmin GPS in tandem with a compass. Data will be recorded electronically using an iPad and will be incorporated into the long-term data set at the CNHP main office.

To create the new demography plots on the existing belt transects, CNHP will use 2013 data to select high density transects, 10 burned and 10 unburned. The plots will each be a 50 x 2 meters along the existing belt transects and will have permanently marked corners. At each plot CNHP will measure:

- Number of individuals and seedlings
- Number of flowers and fruits per individual
- Number of stems per individual
- Height of individual
- Line-point intercept method for weed species composition (50 points/50 m transect).

To begin gathering data on plant longevity, CNHP will pin flag and photograph individual plants in subplots. CNHP will establish soil moisture sensor data logger sets at six of the new demography plots (three burned and three unburned), 50 cm and 10 cm deep. CNHP also will resample the original Sun Point and Sun Temple demography plots using the original protocol to continue to enhance that long-term dataset.

CNHP will incorporate 2015 monitoring data into existing regression models to investigate the relationship between precipitation and Chapin Mesa milkvetch densities. If other variables of interest are identified by CNHP or MEVE staff, those also will be incorporated. Regression models will be built with the assistance of the CSU Statistics Lab.

B. Project schedule and products:

Project Start Date – May 1, 2015

Investigator's Annual Reports (IAR) – March 31, 2016

Database, Collections/Specimens, Archives, and Maps provided to the NPS ATR or Technical Expert – May 15, 2016

Draft Final Report – January 15, 2016

Final Report – April 30, 2016

Project End Date – May 31, 2016

Final SF425 FFR must be submitted within 90 days of project end date

The final report summarizing work completed under this scope of work will be provided in digital and paper format. See Reports and/or Deliverables below.

Any plant specimens of species not previously vouchered at MEVE collected during surveys will be delivered to MEVE staff. The investigators will provide a spreadsheet of required specimen information for entry into the Interior Collections Management System software (ICMS). Photographs and original data forms will be provided to the NPS in a format to be discussed and agreed upon after project initiation.

C. Recipient agrees to: See A. Statement of Work above.

D. NPS agrees to: The NPS ATR/project manager will obtain the necessary permits, environmental clearances, gate keys, radio and other park-specific requirements to facilitate the work of the principal investigator and her team. The ATR will ensure there is regular park staff participation in the fieldwork, data and GIS sharing,

meetings, workshops, and development of final reports, published materials, and educational byproducts.

**ARTICLE IV – TERM OF AGREEMENT**

This Task Agreement will become effective on the date of final signature and extend through end date of May 31, 2016.

**ARTICLE V – KEY OFFICIALS**

A. Key officials are essential to ensure maximum coordination and communication between the parties and the work being performed. They are:

1. **For the NPS:**

Agreement Technical Representative:

George San Miguel  
Natural Resource Manager  
National Park Service  
Mesa Verde National Park  
PO Box 8  
Mesa Verde, CO 81330  
Phone: 970-529-5069  
Fax: 970-529-5071  
Email: george\_san\_miguel@nps.gov

Technical Expert: NA

Awarding Officer:

Kelvin A. Delaney  
Financial Assistance Officer  
National Park Service  
Intermountain Region  
12795 W. Alameda Parkway  
Lakewood, CO 80228  
Phone: 303-969-2796  
Fax: 303-969-2786  
Email: kelvin\_delaney@nps.gov

CPCESU Research Coordinator:

Todd Chaudhry, Ph.D.  
Research Coordinator  
Colorado Plateau Cooperative Ecosystem Studies Unit  
National Park Service  
Northern Arizona University  
PO Box 15018  
Flagstaff, AZ 86011  
Phone: 928-523-6638  
Email: todd\_chaudhry@nps.gov

2. **For Recipient:**

Principal Investigator:

Jill Handwerk  
Botany Team Leader  
Colorado Natural Heritage Program  
Colorado State University, 1475 Campus Delivery  
Fort Collins, CO 80523-1474  
Phone: 970-491-5857  
Fax: 970-491-3349  
Email: jill.handwerk@colostate.edu

Administrative Contact:

Carmen Morales  
Senior Research Administrator, Sponsored Programs  
Colorado State University, 2002 Sponsored Programs  
237 University Services Center  
Fort Collins, CO 80523-2002  
Phone: 970-491-6684  
Fax: 970-491-6147  
Email: carmen.morales@colostate.edu

- B. **Communications** - Recipient will address any communication regarding this Agreement to the Awarding Officer with a copy also sent to the ATR. Communications that relate solely to routine operational matters described in the current work plan may be sent only to the ATR
- C. **Changes in Key Officials** - Neither the NPS nor Recipient may make any permanent change in a key official without written notice to the other party reasonably in advance of the proposed change. The notice will include a justification with sufficient detail to permit evaluation of the impact of such a

change on the scope of work specified within this Agreement. Any permanent change in key officials will be made only by modification to this Agreement.

## **ARTICLE VI – AWARD AND PAYMENT**

- A. Financial Assistance: NPS will provide funding to Recipient in an amount not to exceed \$16,712 for the work described in Article III and in accordance with the approved budget (Attachment A). Any award beyond the current fiscal year is subject to availability of funds.
- B. Recipient shall request payment in accordance with the following:
1. **Method of Payment.** Payment will be made by advance and/or reimbursement through the Department of Treasury's ASAP system.
  2. **Requesting Advances.** Requests for advances must be submitted via the ASAP system. Requests may be submitted as frequently as required to meet the needs of the FA Recipient to disburse funds for the Federal share of project costs. If feasible, each request should be timed so that payment is received on the same day that the funds are dispersed for direct project costs and/or the proportionate share of any allowable indirect costs. If same-day transfers are not feasible, advance payments must be as close to actual disbursements as administratively feasible.
  3. **Requesting Reimbursement.** Requests for reimbursements must be submitted via the ASAP system. Requests for reimbursement should coincide with normal billing patterns. Each request must be limited to the amount of disbursements made for the Federal share of direct project costs and the proportionate share of allowable indirect costs incurred during that billing period.
  4. **Adjusting payment requests for available cash.** Funds that are available from repayments to, and interest earned on, a revolving fund, program income, rebates, refunds, contract settlements, audit recoveries, credits, discounts, and interest earned on any of those funds must be disbursed before requesting additional cash payments.
  5. **Bank Accounts.** All payments are made through electronic funds transfer to the bank account identified in the U.S Treasury ASAP system by the FA Recipient.
  6. **Supporting Documents and Agency Approval of Payments.** Additional supporting documentation and prior Agency (NPS) approval of payments



may be required when/if a FA Recipient is determined to be “high risk” or has performance issues. If prior Agency payment approval is in effect for an award, the ASAP system will notify the FA Recipient when they submit a request for payment. The Recipient must then notify the NPS Awarding Officer identified on the Assistance Agreement that a payment request has been submitted. The NPS Awarding Officer may request additional information from the Recipient to support the payment request prior to approving the release of funds, as deemed necessary. The FA Recipient is required to comply with these requests. Supporting documents may include invoices, copies of contracts, vendor quotes, and other expenditure explanations that justify the reimbursement requests.

## **ARTICLE VII – REPORTS AND/OR DELIVERABLES**

- A. Specific projects or activities within this agreement will be tracked and reported by quarterly submission of a SF-425 Federal Financial Report (FFR) and annual submission of a Performance Report. A final SF-425 and Performance Report shall be submitted at the completion of the Agreement. The following reporting period end dates shall be used for interim reports: 3/31, 6/30, 9/30, 12/31. For final the SF-425 and Performance Report, the reporting period end date shall be the end date of the agreement. Interim reports shall be submitted no later than 30 days after the end of each reporting period. Annual and final reports shall be submitted no later than 90 days after the end period date. All reports shall be submitted via email to the NPS Awarding Officer with a copy to the NPS Agreements Technical Representative via email.
- B. An electronic version and four color paper copies of the final report, and a separate abstract suitable for public distribution, will be submitted by the Recipient to the ATR. The ATR will send the final report electronically to NPS’s Technical Information Center and carbon-copy the CESU Research Coordinator. Please send Catherine Kisluk at Technical Information Center (TIC) one of the paper copies and the digital copy of the final report and abstract. ATR will mail the paper copy to: NPS Technical Information Center (TIC) 12795 West Alameda Parkway, Lakewood, Colorado 80228 Attn: Catherine Kisluk and email the digital version to [catherine\\_kisluk@nps.gov](mailto:catherine_kisluk@nps.gov) and cc the CESU Research Coordinator.

If the report does not contain sensitive material, the Research Coordinator will send it to the host university for posting on the CESU website. If it does contain sensitive material, then a brief abstract must be supplied that will be posted on the CESU website.

- C. NA

## **ARTICLE VIII – MODIFICATION AND TERMINATION**

This Task Agreement may be modified at any time, prior to the expiration date, by the mutual concurrence of the Recipient and the NPS. Modifications will be in writing, approved and signed by the NPS Awarding Officer and the Recipient's signatory official.

## **ARTICLE IX – GENERAL PROVISIONS**

1. **OMB Circulars and Other Regulations.** The following Federal regulations are incorporated by reference into this Agreement (full text can be found at <http://www.ecfr.gov>):

- a) **Administrative Requirements:**

*2 CFR, Part 200 – Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, in its entirety;*

- b) **Determination of Allowable Costs:**

*2 CFR, Part 200 – Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, Subpart E;*

and

- c) **Audit Requirements:**

*2 CFR, Part 200 – Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, Subpart F.*

## **ARTICLE IX – ATTACHMENTS**

The following documents are attached and made a part of this Task Agreement:

- A. Detailed Budget
- B. SF-424s
- C. Other Attachments: NA

## **ARTICLE X - SIGNATURES**


**IN WITNESS WHEREOF**, the parties hereto have executed this Task Agreement on the date(s) set forth below.

**FOR RECIPIENT**

\_\_\_\_\_  
Name  
Title

\_\_\_\_\_  
Date

**FOR THE NATIONAL PARK SERVICE**

  
\_\_\_\_\_  
Kelly Adams  
Awarding Officer

5/13/15  
\_\_\_\_\_  
Date