Parks & Open Space
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2024 Small Grants Program

The Boulder County Parks & Open Space (BCPOS) department is offering small grants for research and biological inventories on open space lands. These research projects and inventories provide valuable data to monitor management practices and improve resources and park visitor experiences. Grants awarded up to $10,000. **The deadline for proposals is Tuesday, January 16, 2024.**

Priority Research Topics

Boulder County Parks & Open Space staff have identified the following research topics as priority needs for natural resource and visitor management. This list is not exhaustive, and we encourage you to submit research topics that are not listed. Please note for this request, the terms "grant" and "proposal" are only used in an informal context. We strongly encourage you to contact appropriate staff members (see list on last page) to discuss research topics in advance of the deadline.

We are seeking research proposals for the following topics:

Plant Ecology

- A lab study manipulating cold stratification periods for various native species requiring long cold stratification periods and/or from different elevational gradients and implications for long term viability in the face of climate change.
- A literature review or field study comparing pollinator richness, or a larger comparative invertebrate survey, of native grasslands with and without the presence of prairie dogs.
- Analyze historical changes in native and non-native tree establishment and distribution relative to stream channel morphology, utilizing a combination of aerial imagery, LiDAR, tree dendrochronology, or other applicable methods.
- Investigate the efficacy of aerial wood mulching on soil loss and vegetation establishment on the Cal-Wood Fire, three years post fire.
- Does I-Naturalist or other citizen science spatial mapping platforms enable or increase plant poaching of at-risk species in the wild?
- A lab/greenhouse study to determine any residual Indaziflam impacts to the germination of native annuals in a soil seedbank.
- Demonstrate the ability, materials, and methods to utilize remote sensing and GIS technology to monitor and assess changes in vegetation cover and plant community composition in the Front Range.
- Assessing wetland plant diversity and functional traits in grazed and ungrazed wetlands.

Wildlife

- Develop or utilize an open-source, highly accurate artificial intelligence software system to identify terrestrial wildlife species within BCPOS-provided game camera photos.

- Investigate utilization of downed woody substrate by small mammals in lower montane and/or upper montane forests. Conduct a literature review and develop guidelines for management to retain woody substrate.
- Feasibility study of drone-mounted bait distribution system for prairie dog plague vaccinations.
- Conduct comparative inventories of willow carr condition using historical data. In the absence of historical data, conduct baseline assessments of current conditions, related to increased grazing ungulate pressure. Based on assessments, provide recommendations for maintaining or improving site conditions.
- Assessment of long-term study data of bird diversity and abundance in high elevation areas in Boulder County to determine analysis potentials, based on collection methodologies, consistency of annual effort levels and other factors.

Forestry and Fire

- Demonstration study for utilizing U.A.S. to remotely identify limber pine. We would be targeting one or two properties to determine the feasibility once BCPOS has its own multi/hyper-spectral camera.

Education and Outreach

- Estimate seasonal and annual visitation to Boulder County's regional trails (Coal Creek, Rock Creek, and LoBo Trails.)

Invasive Plants

- Does soil microbe density, diversity and function change depending on soil moisture patterns in Indaziflam Cheatgrass controlled Treated sites vs. untreated sites? Conduct Soil Microbe analysis looking at microbe diversity and density and function in comparison to soil moisture patterns in Indaziflam treated sites vs Untreated sites, with companion lab experiments that look at shorter- term Indaziflam treatment effects under controlled conditions to identify soil microbe impacts.
- How does cheatgrass impact wildfire or prescribed fire behavior? Study would Conduct field trial of cheatgrass fire behavior in a controlled setting. Study would consider fuel compositions (cheatgrass, vs. perennial vegetation), overall fuel biomass in the system, and identify differences in fire speed/mobility across the surface of various vegetation compositions, evaluate fire temperatures and flame length, to help identify what role cheatgrass plays in wildfire or prescribed fire.
- Does Shrub forage quality improve in native wildlife shrub browse and native forb species in Indaziflam treated vs. untreated sites? Study will conduct a comparison of Indaziflam treated and untreated critical winter range browse and forbs for mule deer looking at forage quality found on the two sites.

Agriculture Division

- How much power could a solar panel array produce and how big would it have to be to offset the cost of the energy used by a center pivot? Also, can we create a habitat beneath the solar panel arrays for wildlife and what would that look like?

Important Dates to Keep in Mind

- Proposals must be received by **Tuesday, January 16, 2024.**
- Applicants will be notified by **Tuesday, February 20, 2024.**
- Grantees will need to submit the first draft report by **Monday, October 28, 2024**, unless other arrangements are made in advance.
- The final draft report (see requirements below) is due no later than **Monday, December 2, 2024**, to receive final payment.

Proposal Requirements

- Please visit BoulderCountyOpenSpace.org/research and click on the Submit Proposal button to submit your proposal electronically. **No hard copies will be accepted.**
- Late and/or proposals that do not meet the requirements will not be considered. Researchers are encouraged to submit early. If a proposal is submitted early and it is determined that it does not meet the requirements, the researcher will be given a chance to re-submit their proposal one additional time by the deadline.
- The proposal must be typed, double-spaced, and not exceed six pages. The only pages not included as part of the six-page limit are the cover page, maps and Section 5 (Qualifications of Researchers).
- Other sources of funding supporting the project should be identified.
- Anyone may apply. Students must submit a signed letter from an academic advisor to confirm that the proposal has been reviewed, approved, and is supported.
- Research must take place on Boulder County Parks & Open Space properties.
- Researchers may use Boulder County conservation easement lands with the condition that the researcher secures prior written permission from the private landowner.
- Researchers must adhere to all applicable policies and regulations set forth by the department. The researcher is responsible for knowing the appropriate rules.
- Grant proposals over $10,000 will not be considered.
- ***Proposals must include the following five sections***. Proposals that do not follow the required format listed below will not be considered.

SECTION 1, <u>Abstract</u>

- Provide a summary (abstract) of the proposal that describes the objectives, general methods, and anticipated value of the research.

SECTION 2, Introduction

Objectives, Hypotheses, Anticipated Value, Literature Review

- The proposal report cover page should specify the proposal report title, author name(s), contact information, and proposal report date.
- Describe the overall objective(s) to be addressed by the research.
- State the hypotheses and alternative hypotheses or purpose of research related to the objective.
- State how the research will contribute to the natural resource and/or visitor management needs of Boulder County Parks & Open Space.
- Describe the anticipated value of the research to furthering of scientific knowledge and public education.
- Provide a summary of pertinent published literature.

SECTION 3, Methods

Description of research

- A detailed explanation of sampling or survey methods.
- A discussion of data analysis techniques.
- Project requirements, including logistics and permits.
- A detailed project schedule.
- A map showing location of research activities.
- Describe in detail any potential negative impacts to the natural resources.

SECTION 4, Budget

- Provide a detailed and itemized annual budget, including funding requirements for salaries, equipment, travel, office supplies, report preparation, and required overhead.
- Provide information on any sources of cooperative funding or assistance-in-kind and include appropriate documentation.

SECTION 5, Qualification of Researchers

- Provide a resume or curriculum vitae of the investigator(s), including the faculty advisor for student projects.
- For student projects, attach a signed statement from a faculty advisor (as the first page) supporting and approving the proposal and describing the degree of faculty involvement and supervision. Faculty sponsors are responsible for providing the final report should the student fail to submit one. Future requests by students of a faculty advisor who has not provided required reports may not be processed.

Small Grant Policy

- Research projects must be completed the year funding is allocated.
- Research preference is given to projects conducted on Parks & Open Space properties.

- Universities, local government agencies, private organizations, and individuals are all eligible for funding from this program.
- There is no requirement for matching funds.
- Overhead from any applicant must not exceed 15%.
- Parks & Open Space staff constitutes the review panel.
- Parks & Open Space staff reserve the right to re-negotiate the scope of work and budget depending on available funding.
- Projects are funded in two categories: up to $5,000 and up to $10,000.
- Maximum project funding will not exceed $10,000 per project, per year.
- Research projects funded one year in no way ensures continued funding in subsequent years.
- Final Reports must be submitted to Parks & Open Space before final payment is issued.
- Final Reports become property of Boulder County and will be available electronically to the public through the county website.

Interagency Research

Did you know that City of Boulder Open Space and Mountain Parks (OSMP) and Longmont Public Works & Natural Resources also fund research? To discuss the possibilities of a shared research project, please contact Raquel Robles (BCPOS), Mathew Holzwarth (City of Longmont Parks & Natural Resources) or Ann Lezberg (OSMP) to discuss custom application procedures.

Research Proposal Contacts
You are welcome to contact us to discuss your proposal ahead of time!

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BCPOS Small Grants Research Program Report Format Guidelines

General Format

These guidelines are loosely modeled upon the preparation instructions for Ecology manuscripts (https://esajournals.onlinelibrary.wiley.com/hub/journal/19399170/resources/author-guidelines-ecy#Manuscript_Format), with some differences, including an executive summary. All reports must adhere to these guidelines. Reports that do not adhere to these guidelines will be returned to the researcher. Submitting reports that do not follow this format may jeopardize receipt of BCPOS funding in the future.

- The target length is 20-30 manuscript pages (double spaced, 12-point Times New Roman, 1-inch margins), including everything from the Executive Summary through the last figure.
- Figures and tables come after the literature cited (i.e., figure and tables are not embedded in the main text) and occupy one page each. Do not include a table/list of figure legends.
- Avoid double reporting. For example, if data is presented in a figure, do not represent it as a table or in the text.
- Page numbers should begin with the Abstract and be placed in the upper right-hand corner.
- All pages should have line numbers, and line number should be continuous (i.e., do not restart line numbers on each page).
- Do not include a hard break between sections (e.g., the methods should not start on a new page).
- Additional content that will not fit in the manuscript can be included as an appendix.
- **First Draft: Single manuscript file, in word document format. Appendices (if any) should be combined and submitted as a second word document.**
- **Final Draft: Single manuscript file, in PDF document format. Appendices (if any) should be combined and submitted as a second PDF document.**
- **Final Draft: RAW data should be in a spreadsheet format. Mapping data should be compressed into a single folder.**

Executive Summary (one page)

The executive summary is written to aid in decision-making by managers and policy makers. As such, it should provide a high-level summary of the work, allowing the reader to become acquainted with the material without having to read it all. Please also include a list of 3-5 bullets with potential management implications at the bottom of the summary. Do not include tables or figures. Include the report title and names of and affiliation of each author and their emails; also, identify the lead principal investigator and his/her contact information. Identify the staff sponsor(s). Include the date of the draft report.

The executive summary may be read in place of the longer document, while the abstract is read to decide whether to read the main document.

Abstract (300 words maximum) **and keywords**
Explain the relevance of and need for the proposed work. Provide a summary of the research, including the methods, results, and major conclusions. Describe how results will contribute to natural resource management and/or conservation or human dimensions goals on BCPOS lands. Do not include literature citations in the Abstract. Following the Abstract, list up to 12 keywords.

Introduction
Briefly describe the problem to be addressed and its origin(s). Explain how information from this work will benefit natural resource management and conservation, or recreation management, on BCPOS lands. Provide a brief literature review covering relevant prior work related to the project. Include one or more clearly stated objective(s), questions, or hypotheses.

Methods
Methods should be brief but provide enough information to allow for the work to be repeated. Key topics to include are the experimental design, sampling procedures, statistical procedures, dates, duration, and location of the work.

Results
Concisely state the results of the research, without interpretation.

Discussion
Synthesize your results about your hypotheses and relate your work to other research. Discuss the significance of the results, including their relevancy to local and regional issues. Also, summarize all deliverables.

Literature Cited
Provide full citations for all scientific and technical documents that are referenced in the report. Ensure that all references listed in the Literature Cited section are included in the text and vice-versa. The list should conform in sequencing and punctuation to that in recent issues of Ecology. The references should be in alphabetical order with the journal name unabbreviated. Authors should be listed surname first, followed by a comma and initials of given names. If there are multiple authors, the last author is listed initials first and surname second. e.g. Keane, R. M., and M. J. Crawley. The publisher and city of publication are required for books cited.

Tables (one page each)
Tables should supplement, not duplicate, the text. The format should conform that in recent issues of Ecology. Tables should be numbered in the order of their citation in the text. Start each table on a separate page. Provide a short descriptive title at the top of each table; rather than simply repeating the labels on columns and rows of the table, the title

should reveal the point of grouping certain data in the table. Statistical and other details should be provided as footnotes rather than appearing in the title. Never repeat the same material in figures and tables; when either is equally clear, a figure is preferable. Do not include any class of information in tables that is not discussed in the text of the manuscript. Tables cannot contain colors, shading or graphics. If such enhancements are needed, the information should be formatted as a figure.

Figures (one page each)
Number figures in the order in which they are discussed in the text. Use symbology that most clearly communicates differences among symbols and will work in grey scale if possible. Below each figure, include a figure legend on the same page. The figure title (i.e., Figure 1) should be given as the first two words of the legend. Do not group the figure legends on one page.

Appendices (combine all appendices into one document)
Appendices should contain supplemental material. This may include methodological details that did not fit in the main body, original and derived datasets, source code, details of and software for unusual statistical analyses, etc.

RAW Data and Mapping Products
Combine raw data into a single spreadsheet workbook and separate data types into worksheets. Mapping products (i.e. ArcMap) should be put into a single folder and compressed.