

## SCIENTIFIC RESEARCH AND COLLECTING PERMIT

Grants permission in accordance with the attached  
general and special conditions



United States Department of the Interior  
National Park Service

Sequoia and Kings Canyon  
Entrance fee waived

**Study#:** SEKI-00153

**Permit#:** SEKI-2015-SCI-0020

**Start Date:** Apr 02, 2015

**Expiration Date:** Dec 31, 2015

**Coop Agreement#:**

**Park Code:** SEKI-2006-00153

### Name of principal investigator:

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### Name of institution represented:

University of California, Merced

### Co-Investigators:

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### Study Title:

Water balance & carbon cycling across the snow line in forested landscapes

### Purpose of study:

The purpose of the project is to describe water and carbon cycle interactions between the land surface and the atmosphere in forests and meadows near the rain-snow transition. The study uses both remotely sensed and ground-based information.

All studies will use existing hydrologic observatory instrumentation and infrastructure based in the Wolverton Creek and Marble Fork of the Kaweah watersheds, which will be maintained at previously approved levels of operation.

In Long Meadow after snow melt, a meteorological station will be reinstalled at the same location as last year and outfitted with an eddy correlation set up on a 3 m x 3 m tripod. The sonic anemometer that is part of this set up runs a small fan at times, with noise similar to a notebook computer fan. The instrumentation may be visible from the trail as in past years.

A water quality instrument may be deployed in Long Meadow and Wolverton Creek, where the existing pressure transducers are located. The salt dilution tracer method, approved under a past permit, will be used for discharge measurement. Water samples (up to 5 L) may be collected by hand (every two weeks) or by automated water sampler.

Snowpack data was collected via snowpit in March 2015 (permitted under co-investigator Donyue Li), and by federal snow sampler throughout Wolverton Basin from mid-February to early April. Existing weather stations, wells, and distributed sensors will be maintained.

There are no soil samples planned for collection this year. A small amount of soil disturbance may occur to remove existing equipment and to install a CA DWR snow pillow that was approved via separate compliance in 2009.

### Subject/Discipline:

Water / Hydrology

### Locations authorized:

Proposed activities will continue to take place at locations described in the previously submitted spatial summary report: Wolverton

Basin and Long Meadow.

Temporary installation for the summer/fall in Long Meadow of an eddy covariance equipped micrometeorological station (344606 m E 4051056 m N). The met station instruments will be deployed on a tri-pod no more than 3 m high and 3 m in diameter and be powered by a 95W solar panel and battery. The tri-pod will be secured to the surface using 12-18" spikes.

**Transportation method to research site(s):**

Access to the proposed sites in the vicinity of Wolverton will be by vehicle on the existing road that extends off Generals Highway, which includes the Wolverton parking loop, as well as by foot and pack stock on the existing trails around Wolverton. For those proposed sites in the non-wilderness areas extending south to Panther Meadow and east to Panther Gap, access will be by foot, snowshoes, or skis on the existing trail and pack stock.

**Collection of the following specimens or materials, quantities, and any limitations on collecting:**

Snow and water collections are permitted in the quantities proposed.

**Name of repository for specimens or sample materials if applicable:**

Repository type: Will be destroyed through analysis or discarded after analysis

Objects collected:

Up to 1500 liters of snow and water may be collected, during the 2015 season, and chemically analyzed at the Environmental Analytical Laboratory, UC Merced, at Lawrence Livermore National Laboratory, or on site. The samples will be either destroyed in analysis or archived, for future analysis. Currently, planned sites for this project are on the Sierra National Forest, but may add sample from ongoing sites at Wolverton basin and Long Meadow as well.

**Specific conditions or restrictions (also see attached conditions):**

General Conditions

1.Notification - Check in at nearest ranger station at start of field season, and show Research and Collecting Permit. Carry the permit with you when conducting research.

2.Health & safety - Like other visitors, permit holders are responsible for their own and their team's health and safety when in a national park unit. All natural areas pose risks, therefore be prepared in advance to eliminate or mitigate those risks. Let someone know your itinerary, communicate to that person if it changes, and establish an action threshold if your party fails to communicate as expected. Consider what is needed if a medical emergency occurs and take the appropriate actions to insure that those needs will be met. Permit holders need to exhibit a degree of self reliance and responsibility for their own safety commensurate with the difficulty of their chosen activities.

3.Wilderness Guidelines & Permits –

- Research permittees are required to obtain a Wilderness Permit for overnight stays away from the developed areas. These permits are issued at several locations in the parks: Cedar Grove, Grant Grove, Lodgepole, Ash Mountain, and Mineral King. Permits must be obtained at the location nearest the trail head which will be used for wilderness access.
- For this researchers entering the parks via the east-side Inyo National Forest, wilderness permits must be obtained by contacting the INF Wilderness Permit Office @ ph. 760-873-2492, FAX 760-873-2484: Include a list of "Project Participants" and "Trailheads" that you need access from along with a copy of your research permit. To conduct research in a National Forest, a separate research permit is required.
- Researchers are required to comply with all wilderness regulations and restrictions (though they are not subject to the wilderness fee, need not make reservations, and will generally be permitted to exceed entry quotas), in order to preserve the wilderness environment. A permit must be obtained for each overnight visit into wilderness, that is, they are issued for each trip, not for the entire season.
- Researchers are respectfully requested to be acutely aware of how their activities affect the wilderness experience of other wilderness users. Camp and travel using Leave No Trace techniques. Comply with food storage and disposal requirements at all times.
- Where possible, researchers should use established stock camps, trail crew camps, and backpacker camps. When a project requires that a new site be used for camping, appropriate Resource Management and Visitor Protection park staff should be consulted regarding camp selection. Paramount in selecting a new site is the ability to restore the site once the project is completed and the camp is no longer needed.
- All grazing and stock use is to be done within the constraints of the parks' Stock Use and Meadow Management Plan and using Leave No Trace stock techniques.
- Visit the park web sites to obtain specific park and Wilderness guidelines and regulations. Review these with all field staff prior to initiating field work. For additional information, please call the Wilderness Office at 559-565-3766. Web sites: [www.nps.gov/seki](http://www.nps.gov/seki) and [www.nps.gov/seki/planyourvisit/wilderness.htm](http://www.nps.gov/seki/planyourvisit/wilderness.htm)

4.Additional Analyses - Some research activities may require a Minimum Requirements Analysis (MRA), Environmental Assessment, or other additional analysis. Researchers are required to adhere to the results and conditions of these additional analyses.

5. Protect Cultural Resources –

- Any ground disturbing activities will require Section 106 review (NHPA).
- Should previously unknown historic or prehistoric resources be unearthed during project implementation, work will be halted in the discovery area, the site secured, and the parks' Cultural Resource Specialist notified. A qualified cultural resource management specialist will examine the area as soon as possible.

6. All installations, including field markers, such as tags, flagging, nails, poles, paint, etc. must be approved in advance, and completely removed by the end of field activities or the permit expiration date (whichever is earlier) unless other specific arrangements with the Parks have been made for longer-term deployment.

7. Mechanized equipment - No use of mechanized equipment in designated, proposed, or potential wilderness areas is allowed unless authorized by the superintendent or a designee in additional specific conditions associated with this permit.

8. Methods of travel - Travel within the park is restricted to only those methods that are available to the general public unless otherwise specified in additional stipulations associated with this permit.

9. Collection of specimens (including materials) - No specimens (including materials) may be collected unless authorized on the Scientific Research and Collecting permit. The general conditions for specimen collections are:

- Collection of archeological materials without a valid Federal Archeology Permit is prohibited.
- Collection of federally listed threatened or endangered species without a valid U.S. Fish and Wildlife Service endangered species permit is prohibited.
- Collection methods shall not attract undue attention or cause unapproved damage, depletion, or disturbance to the environment and other park resources, such as historic sites.
- New specimens must be reported to the NPS annually or more frequently if required by the park issuing the permit. Minimum information for annual reporting includes specimen classification, number of specimens collected, location collected, specimen status (e.g., herbarium sheet, preserved in alcohol/formalin, tanned and mounted, dried and boxed, etc.), and current location.
- Collected specimens that are not consumed in analysis or discarded after scientific analysis remain federal property. The NPS reserves the right to designate the repositories of all specimens removed from the park and to approve or restrict reassignment of specimens from one repository to another. Because specimens are Federal property, they shall not be destroyed or discarded without prior NPS authorization.
- If a researcher plans to store specimens in a non-NPS repository, they must obtain signatures on the Appendix A that was generated with the permit application. A copy of the signed and dated Appendix A must be provided to the science coordinator. It is preferred that this is scanned and emailed as a PDF attachment.
- Researchers then must follow the Non-NPS Repository Instructions provided in the attachment.
- Each specimen (or groups of specimens labeled as a group) that is retained permanently must bear NPS labels and must be accessioned and cataloged in the NPS National Catalog. Unless exempted by additional park-specific stipulations, the permittee will complete the labels and catalog records and will provide accession information. It is the permittee's responsibility to contact the park for cataloging instructions and specimen labels as well as instructions on repository designation for the specimens.
- Collected specimens may be used for scientific or educational purposes only, and shall be dedicated to public benefit and be accessible to the public in accordance with NPS policies and procedures.
- Any specimens collected under this permit, any components of any specimens (including but not limited to natural organisms, enzymes or other bioactive molecules, genetic materials, or seeds), and research results derived from collected specimens are to be used for scientific or educational purposes only, and may not be used for commercial or other revenue-generating purposes unless the permittee has entered into a Cooperative Research And Development Agreement (CRADA) or other approved benefit-sharing agreement with the NPS. The sale of collected research specimens or other unauthorized transfers to third parties is prohibited. Furthermore, if the permittee sells or otherwise transfers collected specimens, any components thereof, or any products or research results developed from such specimens or their components without a CRADA or other approved benefit-sharing agreement with NPS, permittee will pay the NPS a royalty rate of twenty percent (20%) of gross revenue from such sales or other revenues. In addition to such royalty, the NPS may seek other damages to which the NPS may be entitled including but not limited to injunctive relief against the permittee.

10. Prevent introduction and spread of non-native plants. Inspect, remove, and properly dispose of invasive plant seed and plant parts found on clothing, boots, tools, and camping equipment. Disposal consists of removing the seed and plant parts from clothing and equipment at a spot near the infestation, or bagging the seeds and plant parts and disposing as bagged garbage.

11. Reporting of study locations - Geospatial coordinates for the locations of actual study sites, specimen collections, and/or equipment installations are required by March 1 following the year in which the permit was issued. See attached "Annual Spatial Data Requirement for Researchers" instructions.

12. Reporting of Results - The permittee is required to submit an Investigator's Annual Report and copies of final reports, publications, and other materials resulting from the study. Permittee is responsible for the content of reports and data provided to the National Park

Service.

- Instructions for how and when to submit an annual report will be provided by NPS (by email).
- Copies of field notes, databases, maps, photos, and/or other materials may also be requested.
- The preferred method of submission of final reports is to submit them directly via the RPRS website under the 'Submit Final Reports and Other Related Materials' Option. Alternatively, a digital copy (e.g. PDF) may be sent by email to koren\_nydick@nps.gov. As a last option, two hard copies may be sent to Office of Resource Management and Science, Sequoia and Kings Canyon National Parks, 47050 Generals Highway, Three Rivers, CA 93271.

13.Authority - The permittee is granted privileges covered under this permit subject to the supervision of the superintendent or a designee, and shall comply with all applicable laws and regulations of the National Park System area and other federal and state laws. A National Park Service (NPS) representative may accompany the permittee in the field to ensure compliance with regulations.

14.Responsibility - The permittee is responsible for ensuring that all persons working on the project adhere to permit conditions and applicable NPS regulations.

15.False information - The permittee is prohibited from giving false information that is used to issue this permit. To do so will be considered a breach of conditions and be grounds for revocation of this permit and other applicable penalties.

16.Assignment - This permit may not be transferred or assigned. Additional investigators and field assistants are to be coordinated by the person(s) named in the permit and should carry a copy of the permit while they are working in the park. The principal investigator shall notify the park's Research and Collecting Permit Office when there are desired changes in the approved study protocols or methods, changes in the affiliation or status of the principal investigator, or modification of the name of any project member.

17.Revocation - This permit may be terminated for breach of any condition. The permittee may consult with the appropriate NPS Regional Science Advisor to clarify issues resulting in a revoked permit and the potential for reinstatement by the park superintendent or a designee.

18.Confidentiality - The permittee agrees to keep the specific location of sensitive park resources confidential. Sensitive resources include threatened species, endangered species, and rare species, archeological sites, caves, fossil sites, minerals, commercially valuable resources, and sacred ceremonial sites.

19.Other permits - The permittee must obtain all other required permit(s) to conduct the specified project.

20.Insurance - If liability insurance is required by the NPS for this project, then documentation must be provided that it has been obtained and is current in all respects before this permit is considered valid.

21.NPS participation - The permittee should not anticipate assistance from the NPS unless specific arrangements are made and documented in either an additional stipulation attached to this permit or in other separate written agreements.

22.Access to park and restricted areas - Approval for any activity is contingent on the park being open and staffed for required operations. No entry into restricted areas is allowed unless authorized in additional park specific stipulations attached to this permit.

23.Expiration date - Permits expire on the date listed. Nothing in this permit shall be construed as granting any exclusive research privileges or automatic right to continue, extend, or renew this or any other line of research under new permit(s).

24.Other stipulations - This permit includes by reference all stipulations listed in the application materials or in additional attachments to this permit provided by the superintendent or a designee. Breach of any of the terms of this permit will be grounds for revocation of this permit and denial of future permits.

Recommended by park staff (name and title):

*Koren Nydick*

Koren R. Nydick  
Ecologist/Science Coordinator

Reviewed by collections Manager:

Yes \_\_\_\_\_ No X

Approved by park official:

*Woody Smeck*

Woody Smeck, Superintendent

Date Approved:

April 1, 2015

I Agree To All Conditions And Restrictions Of this Permit As Specified  
(Not valid unless signed and dated by the principal investigator)

*[Signature]*

Principal investigator's signature

*April 5, 2015*

(Date)

**THIS PERMIT AND ATTACHED CONDITIONS AND RESTRICTIONS MUST BE CARRIED AT ALL TIMES  
WHILE CONDUCTING RESEARCH ACTIVITIES IN THE DESIGNATED PARK(S)**