Accurate understanding of soil carbon cycling is critical for predicting future climate. Decomposition of root litter and its transformation into soil organic matter are critical processes of soil carbon cycling. A team led by Dr. Margaret Torn from Lawrence Berkeley National Laboratory has been studying the impacts of soil warming and plant rhizosphere on decomposition of labeled roots buried at two soil depths using a field lysimeter facility at Hopland Research and Extension Center.

First season results show the strong role of soil moisture in controlling soil carbon cycling in this Mediterranean ecosystem. Soil warming enhanced plant growth and ecosystem respiration in the early growing season with high soil moisture, while it suppressed plant growth and ecosystem respiration in the late growing season when soil moisture was limited. The team will continue measurements as well as collaborate with microbial ecologists and ecosystem modelers to better understand the underlying processes and to improve the models used for prediction of our future climate.

Research conducted by Margaret Torn
New Species of Flowering Plant Discovered at Hopland

A new species of Nemophila growing sympatrically in Mendocino and Napa counties with a closely related species was discovered at Hopland Research and Extension Center. The new species, Nemophila hoplandensis, differs from Nemophila menziesii var. atomaria in both floral and vegetative color. The corollas of N. menziesii var. atomaria range from deep blue to a bluish white. Nemophila hoplandensis has large and unusually bright white corollas and vegetative structures that are a brighter green than those of N. menziesii var. atomaria. Controlled crosses were made in order to ascertain these populations were a new species; despite sharing pollinators N. hoplandensis is reproductively isolated from N. menziesii var. atomaria via failure of hybrid seed production following artificial crosses. Molecular phylogenetic analyses also clearly differentiate N. hoplandensis within the genus. The newly described species, currently known only from Mendocino and Napa counties, has a range that is more restricted than, and lies within the range of, N. menziesii var. atomaria.

Research conducted by Camille Barr

Outreach, Extension and Education

Shearing School

Sheep Shearing Class, the only program of its kind in California, has been held at the Hopland REC 2009. A maximum of 20 students per year participate in shearing about 400 sheep at Hopland over the course of five days.

The class teaches the New Zealand method of shearing – where the entire fleece is cut from the sheep as a single unit, so it can be sorted and graded according to micron count – and was introduced by bringing shearers to the U.S. from New Zealand. The method is designed to be comfortable for both the sheep and the shearer. Over the years about 250 people have graduated from the class, with some repeating the class to gain more supervised experience. Most students have hailed from California but some have come from Oregon, Utah, Texas, Alaska, Wyoming and Colorado in addition to Canada and Mexico.

In 2014, wool grading was added to the course. Ron Cole, American Sheep Industry (ASI) Wool Education Consultant, was brought in from Colorado and was assisted by retired Montana State University Sheep Extension Specialist, Dr. Rodney Kott, to teach this portion, which had 21 students this year.