

Chuck Racine
May 22, 1940 – January 7, 2014

Chuck was born on May 22, 1940 to William Henry Racine and Cynthia Pettit Racine. He grew up in Hinsdale, Illinois and attended Lake Forest Academy (Illinois), Dartmouth College (New Hampshire) and received a Ph.D. in plant ecology from Duke University (North Carolina). He held academic positions at The Ohio State University, North Carolina State University, and The Center for Northern Studies before becoming a research ecologist at the U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory (CRREL) in Hanover, NH.

The southern Blue Ridge Escarpment of western North Carolina was the region where Chuck did his graduate studies in community dynamics of pine and oak forests. During subsequent years on the faculty at Ohio State, he spent two field seasons in the Galapagos Islands studying plant-animal interactions. But when he began working in Alaska in the 1970's, he had finally found the ecosystems and part of the world that would drive his interest for the rest of his life. Every summer for over 30 years, he would travel to Alaska from home in northern Vermont for months of field work.

In 1973, Chuck joined teams of scientists who were conducting biological surveys of proposed Alaskan national parks and preserves. From 1973 to 1977, he prepared vegetation and floristic inventories for areas that in 1980 the Alaska National Interest Lands Conservation Act established as Bering Land Bridge National Preserve, Kobuk Valley National Park, Lake Clark and Katmai National Parks and Preserves, and Yukon-Charley Rivers National Preserve.

The widespread 1977 tundra fires in northwest Alaska burned one of the areas that Chuck had surveyed four years earlier, providing an opportunity to study post-fire vegetation and thaw depth response. In 1978, he established a transect up the burned slope of Nimrod Hill above Imuruk Lake in what is now Bering Land Bridge National Preserve, and was able to resample it four times over a thirty year period, the last in 2009. Other sites near the Noatak River in what is now the Noatak National Preserve that burned in the 1970's and 1980's, provided Chuck and his co-investigators comparison locations for tundra fire ecology studies in 1981, 1982, and 2005. Chuck made intensive use of early Landsat images and Alaska fire records for the Noatak basin to identify study sites and develop a basinwide estimate of fire return interval. In 2009, Chuck was able to expand his comparative studies by spending a week working at the 2007 Anaktuvuk River tundra fire sites.

Over the years, Chuck developed many field studies of ecosystem response to human-caused disturbance. He conducted environmental impact studies of oil exploration in the Seward Peninsula, tundra response to all-terrain vehicles near Anaktuvuk Pass, and in Bering Land Bridge and Wrangell-St. Elias National Preserves, and airboat use in the Tanana Flats near Fairbanks. While working at CRREL, he organized the project in 1990, at Eagle River Flats, Fort Richardson, near Anchorage, that established white phosphorus contamination as the cause of a decade of waterfowl mortality.

From 1994 to 2009, Chuck participated in several projects evaluating observed and proposed ecosystem effects of climate change in interior, western and arctic Alaska. In the Tanana Flats, adjacent to the Tanana River, he helped show that widespread permafrost degradation beneath birch forests is causing accelerated expansion of the surrounding floating-mat fens. At Ivotuk on the North Slope, and near Council east of Nome, he participated in studies using long transects to assess shrub-snow interactions in a warming climate. He was also part of the project that identified dramatic evidence of substantial shrub expansion on the North Slope of Alaska during the last fifty years, through comparing thousands of low-altitude aerial photographs taken in 1948-50 with current ones of the same locations.

Chuck felt very lucky to work in Alaska, with the endless fascination and challenge of arctic ecosystems, inspiration from the community of scientists, and the friendship of the people, from colleagues at the University of Alaska to reindeer herders on the Seward Peninsula. He enjoyed teaching and encouraging students. He was kind and caring, good-natured, humorous and wise, with strong opinions and boundless curiosity.

He is survived by his wife Marilyn (Middleton) Racine, brothers William and wife Nancy Racine of Lakeside, Michigan and Ross and wife Nancy of Stevensville, Michigan, niece Stacy Racine Lynch, and nephews William, Charles, Robert and Andrew.

Memorial donations may be made to the *Chuck Racine Fund for Field Research* at the University of Alaska Fairbanks online at <http://www.uaf.edu/giving/gift/giving-form/> or by check to UA Foundation, PO Box 755080, Fairbanks, AK 99775 (please indicate "In Memory of Charles H. "Chuck" Racine").



Chuck Racine, Imuruk Lake, 2009 (NPS photo)