

Research Grants and Contracts awarded to Dave Ward, 1977 to 2005

"Linking TBI science with Yellowstone's educational expertise and venues", Ward, D.M. and J. Ambrose (co-PIs), MSU Thermal Biology Institute, 9/1/03-8/31/05, subaward to Ward lab of \$150,000.

"Bioprospecting in Yellowstone National Park: Scientific Possibilities and Societal Ramifications", Holmgren, S. (PI; Ward is one of many Co-Is) National Conferences on Undergraduate Research (NCUR) and the Lancy Foundation, \$62,500, Summer of 2004 and 2005

"Acquisition of instrumentation for laser micro-dissection and functional genomics facility", Franklin, M., PI (Ward, one of many coPIs), M.J. Murdoch Trust, 2/04-9/05, \$ 290,000.

"Do species matter in microbial communities?" Ward, D.M. PI (F.M. Cohan, J. Heidelberg, A. Grossman and D. Bhaya, co-Is), NSF Frontiers in Integrative Biology Program, 9-1-03-9-1-08, \$4, 999, 690 (\$1,004,465 to Ward and MSU).

"Linking our origins to our future", David DesMarais, PI (Ward is Co-I), NASA AMES Astrobiology Inst., 2003-2008, (\$40,000 to Ward and MSU)

"Molecular and geochemical analysis of hot spring cyanobacterial and *Chloroflexus* mats as stromatolite analogs", Ward, D.M, PI (F.M. Cohan, J. Eisen, J. Heidelberg, M.T. Madigan and S. Schouten, co-Is), NASA Exobiology, 5-03 to 5-07, \$588,056 (\$528,743 to Ward and MSU).

"Development of a Laser Capture Microdissection and Functional Genomics User Facility", Ford, T., PI (Ward, co-I), NSF Major Research Instrumentation, submitted, \$408,268

"Patterns and prediction: molecular analyses of PAH-degrading microbial populations and their function in real contaminant mixture environments" (co-PI with W.I. Inskeep and G. Colores), Environmental Protection Agency, 11/01-11/04, \$643,431

"MSU Center for Studying Life in Extreme Environments (Thermal Biology Institute), NASA Exobiology Program, (other participating faculty and I contributed to a proposal assembled on behalf of all TBI faculty and submitted by the PIs Mark Young and Tim McDermott), 9/99-9/03, ca. \$187,975 direct costs so far allocated to Ward for initial 4-year study period

"Molecular and geochemical analysis of hot spring cyanobacterial and *Chloroflexus* mats as stromatolite analogs", NASA Exobiology Program, 11/99-11/02, \$294,000

"Dissertation Research: Geographic isolation and diversification of cyanobacteria in geothermal habitats", NSF Dissertation Improvement Award, 6/99-6/00, \$10,000 (thought I must be the PI, the proposal was written by Thane Papke)

"Comparative studies of microbial mats: community composition, physiological and organic geochemical patterns", NASA Astrobiology Institute Cooperative Agreement with Ames Research Center, \$202,323, 12/1/98-12/1/02 (scheduled to continue annually for a total of 5 yrs. at ca. \$50,000/yr plus inflation).

"Bioremediation ecology: Fundamental relationships between bioavailability gradients and diversity of contaminant-degrading microorganisms" NSF Ecology Program, \$452,000, 9/97-9/2000 (W.P. Inskeep, co-PI)

"Ecology of hot spring microbial mat communities: cause and importance of biodiversity", NSF Ecology Program, \$500,000, 9/97-9/2002

"Molecular and geochemical analysis of hot spring cyanobacterial and *Chloroflexus* mats as stromatolite analogs", NASA, \$387,618, 11/95-11/98

"Research Experiences for Undergraduates: Characterization of populations inhabiting the Octopus Spring cyanobacterial mat community", NSF, \$5000, 6/95-6/96

"Contaminant partitioning in soil microenvironments: effects on selection of contaminant degrading microorganisms", (co-PI with Dr. William Inskeep, MSU Plant, Soil & Environ. Sci. Dept.), U.S. Army Corps of Engineers Waterways Experiment Station, \$163,690 to Ward, 2/95-2/97

"Research Experiences for Undergraduates: Molecular analysis of archaeobacterial populations in the Octopus Spring cyanobacterial mat community", NSF, \$5000, 6/93-6/94

Subcontract for "Elucidation of microbial diversity in the subsurface by a PCR-based approach" (P.I. Dr. Francisco F. Roberto, Idaho National Energy Laboratory, Idaho Falls, ID), U.S. Dept. of Energy (administered via Associated Western Universities), \$14,000, 6/93-10/93

"Ecology of a model hot spring microbial community: Relevance of cultivated and uncultivated species", NSF, \$450,000, 9/92-9/97

"Molecular and Geochemical Analysis of Hot Spring Cyanobacterial and *Chloroflexus* sp. mats as stromatolite Analogs", NASA, \$382,431, 11/91-11/94

"Research Experiences for Undergraduates: 16S rRNA Sequences of Uncultivated Hot Spring Cyanobacterial Mat Inhabitants", NSF, \$5000, 6/91-6/92

"Research Experiences for Undergraduates: Evaluation of bias in synthesis of 16S rDNA from naturally occurring 16S rRNAs" NSF, \$4000, 4/90-12/90.

"Analysis of Microbial Community Structure Using 16S rRNA-based Methods." NSF, \$300,000, 7/89-12/92

"Structure of Microbial Communities Through 16S rRNA Analysis: cDNA and Hybridization Probe Methods." NSF, \$60,000, 1/89-12/89

"Research Experiences for Undergraduates: Analysis of composition of microbial communities based on 16S ribosomal RNA sequence" NSF, \$4,000, 6/88-12/88

"Analysis of composition of microbial communities based on 16S ribosomal RNA sequence", NSF, \$248,533, 6/85-12/88

"Molecular approach to determining the structure of microbial communities." Montana State University Research Creativity Award, \$4,000, 7/84-7/85

"Ecology of hot spring microbial mats: consequences of a superoxic photic zone/molecular analysis of community structure," NSF, \$60,000, 1/15/84-12/31/85

"Microbial limitations in dairy cow manure conversion to methane--improvements in technology", Montana Dept. Natural Resources and Conservation, 7/81-7/82, \$14,052

"Microbial ecology of anaerobic decomposition in hot spring algal-bacterial mats", NSF, 1/81-1/84, \$116,000

"Fate of and effect of hydrocarbon pollutants on microbial activities in marine sedimentary environments", NASA, 2/80-2/81, \$42,500

"Comprehensive survey of biological methane production from agricultural, domestic and industrial resources of Montana", Montana Dept. Natural Resources and Conservation, 4/79-4/80, \$33,433

"Ecology of methane-producing bacteria in hot-spring algal-bacterial mats (70-30C), NSF, 1/79-1/81, \$45,200

"Fate of and effect of hydrocarbon pollutants on microbial activities in marine sedimentary environments", NASA, 11/78-11/79, \$52,128

"Contemporary microscopy instruction in Microbial Ecology/Cell Biology", NSF, 9/78-9/79, \$23,159 (Co PI)

"A comprehensive survey of biological methane production from agricultural, domestic and industrial resources of Montana", Montana Dept. Natural Resources and Conservation, Renewable Energy Alternatives Program, 1/78-1/79, \$23,410

"Biological generation of methane and hydrogen", subcontract via UCLA from Southern California Edison Company, 3/77-3/78, \$8,508