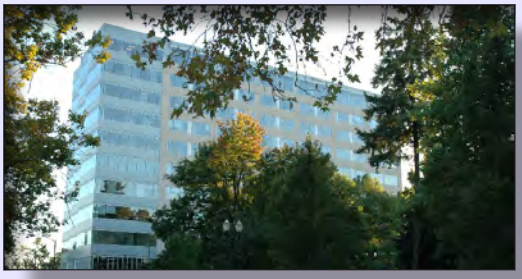
NRCS
Natural Resources
Conservation Service

1201 NE Lloyd Blvd. Suite 1000
Portland, OR 97232

West National Technology Support Center

FY2011 Report

A Message from the Director



We are very happy to provide this end-of-year report on Fiscal Year 2011. This report continues the approach we have been following for a few years of providing in-depth articles by discipline area describing some of the more significant accomplishments of the year and looking ahead to what we anticipate for next year.

Overall, our tracking of direct assistance efforts indicates that we maintained a similar level of interaction and support to our customers as in prior years. We recorded 617 specific direct assistance projects. Of that number, 443 were what we call 'formal' assistance projects. These projects involve more than twenty work hours, states must make a written request, and we provide a written report at the end of the project.

Last year we began tracking more information about our support for training. In FY11 we supported 128 training sessions and provided training to an estimated 4,100 students. Nearly 3,000 students received training through 97 classroom/field training courses. The remaining 1,100 students received training through 31 net-meetings or webinars. Detailed information on training can be found in the tables in this report. In addition, our partnership with the National Employee Development Center continued to expand resulting in new distance learning courses on energy and air quality and projects to update NEDC courses. We also developed and launched a new Science and Technology Training Library to provide access to recorded webinars and other materials (https://nrcs.sc.egov.usda.gov/st/ntsc_training/).

Some the highlights that I would draw your attention to are as follows:

- We worked extensively with the national team charged with developing a process for multi-state payment schedules. We also assisted the various state teams and provided review comments on draft payment schedules.
- FY11 was the first year of implementing the agency decision to include energy resource concerns within the conservation planning process. The Energy Team provided tremendous support for this effort.
- Great progress was made on developing a guidance document and model examples for the development of Ecological Site Descriptions for riparian areas, a new and challenging application of ESD's.
- Our national project to provide assistance to the states on organic production systems through a partnership with a national organic certifying organization was very successful.
- The partnership effort to develop technical materials on pollinator conservation expanded significantly. We now have seven partner scientists providing assistance to NRCS across the country.

Staffing changes occurred with the retirements of Wendell Gilgert, Wildlife Biologist, and Charles Zuller, Environmental Engineer. We were fortunate to get authorization to backfill these positions and to hire Marcus Miller for the biologist position and Sally Bredeweg for the engineering position. They report in early FY12.

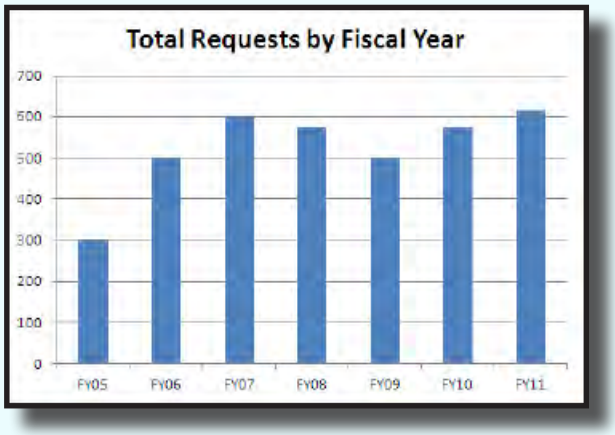
As always, we greatly appreciate the opportunity to provide technology assistance to you, our customers. Please don't hesitate to contact our specialists. And please let me know how we can better serve you.

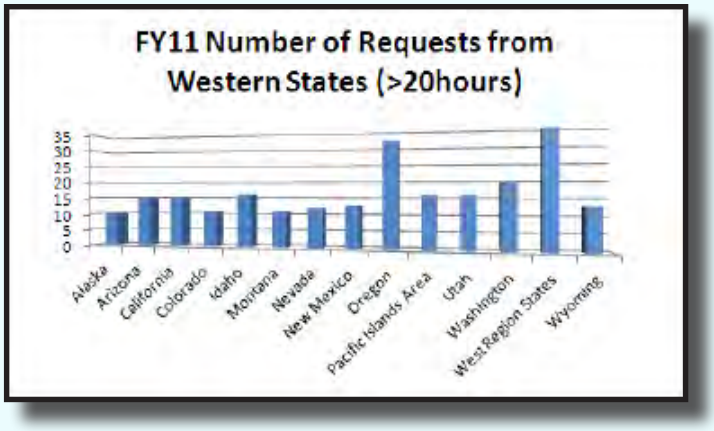
- Bruce Newton

Helping People Help the Land

FY 11 WNTSC
Assistance Analysis

FY11 Number of Requests by Region and Time Commitment			
WNTSC assistance provided to:	Number of Requests		
	Informal (<20 hrs.)	Formal (≥20 hrs.)	Total
West Region States	89	235	324
Central Region States	17	25	42
East Region States	10	23	33
All States	35	114	149
National Headquarters	19	50	69
Total	**170**	**443**	**617**





Count of Requests by Western States FY05-FY11							
	FY05	FY06	FY07	FY08	FY09	FY10	FY11
Alaska	2	12	8	3	11	10	10
Arizona	1	6	16	15	24	18	15
California	15	17	31	33	32	25	15
Colorado	5	16	19	23	23	25	11
Idaho	55	16	15	24	27	18	16
Montana	7	10	12	14	27	18	11
Nevada	5	11	16	16	26	13	12
New Mexico	3	17	15	17	23	14	13
Oregon	31	49	56	58	60	49	32
Pacific Islands Area	9	18	26	16	17	13	16
Utah	2	15	25	23	25	16	16
Washington	11	26	27	17	36	31	20
Wyoming	2	11	20	14	12	25	35
West Region	38	60	63	85	77	88	13
Totals	**136**	**284**	**349**	**358**	**420**	**364**	**235**

FY 11 WNTSC Training Analysis

NTSC Involvement	# of Training Sessions	# of Students
WNTSC designed and delivered	81	2,726
WNTSC supported NEDC course	18	388
WNTSC supported State/Partner training	29	1,000
Total	**128**	**4,114**

Training Method	# of Training Sessions	# of Students
Classroom/Field	97	2,974
Net-Conference	31	1,140
Total	**128**	**4,114**

Training Length	# of Training Sessions	# of Students
1-3 Hours	32	1,445
4-8 Hours	16	501
2 Days	20	619
3 Days	32	848
4 Days	23	575
5 Days	5	126
Total	**128**	**4,114**

Proficiency Level	# of Training Sessions	# of Students
Apply Independently	32	841
Awareness	13	539
Perform with Supervision	35	847
Proficient/Train Others	13	338
Understanding	35	1,549
Total	**128**	**4,114**

Subject	# of Training Sessions	# of Students
Agronomy	19	809
Air	2	62
Conservation Planning/FOTG	9	221
Economics & Social Sciences	14	553
Energy	9	528
Engineering-Construction	2	43
Engineering-Environment	3	4
Engineering-Irrigation	17	473
Environmental Compliance	1	50
Fish & Wildlife	6	129
Forestry	3	34
Geomorphology	2	72
Manure Management	1	12
Plant Materials	2	38
Range & Pasture	21	732
Soils	7	104
Water Quality	10	250
Total	**128**	**4,114**

WNTSC FY2011 Activities

The following information is the result of summary reports by members of the West National Technology Support Center (WNTSC) in which they discussed their key accomplishments in FY11 and what they see coming in the near future.

The WNTSC Core Team consists of seventeen specialists whose primary function is providing direct assistance to the Western States. Three National Technology Development Teams (Air Quality and Atmospheric Change, Energy, and Water Quality and Quantity) are also part of the WNTSC. Their staff may also provide direct assistance to States or work with a specific State in the process of developing new conservation applications; however, their primary function is developing new technology and tools for the Agency as a whole.

Highlighting key discipline areas, the stories start with the Center's Core Team. Due to retirements, the Team had vacancies for a portion of this fiscal year in two discliplines--wildlife biology and environmental enginnering--the later of which is not addressed in this year's report. Following the activities of the Core Team, you will find reports from the Center's three Technology Development Teams.

If you are interested in more details on the activities mentioned here or other efforts of the WNTSC staff, feel free to contact them directly. For more information, please visit our website at: http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/wntsc

Agronomy

WNTSC agronomist Richard Fasching spent the beginning the fiscal year completing the first round of Wind Erosion Prediction System (WEPS) training sessions. He then concentrated on providing direct assistance and training on nutrient management, nutrient budgets, waste utilization, and the use of Manure Management Planner (MMP).

Rick provided numerous training and technology transfer events on various agronomic, nutrient, and erosion related topics. In addition to the traditional classroom and field learning venues, Rick utilized the new video teleconferencing (VTC) technology to assist several States, and even a graduate class at Michigan State University.

Rick Fasching, Conservation Agronomist provides nutrient management training to participants at the precision ag breakout session in Utah this summer.

Nutrient management will be the major focus in FY12 because of a new 590 standard expected to be issued. Once the standard arrives, Rick will be assisting each State in the development of their updated standard, specification, job sheet, and the associated phosphorus index and leaching index.

Early in the year, WNTSC agronomist Giulio Ferruzzi provided an Advanced Level RUSLE2 training session to State and Area agronomist from eleven different States at the Lincoln, Nebraska Soil Survey Center. In April, in collaboration with Craig Smith (Alaska State Agronomist) and Dr. Corlene Rose (Univ. of Alaska) Giulio delivered the NEDC course Pest Management Considerations in Conservation Planning in Palmer, Alaska. He delivered the same course at Spokane, Washington in August in collaboration with Mark Stannard (Washington Plant Materials Specialist) and Dr. Allan Felsot (Washington State Univ.).

Alaska NRCS employees attend an organic training session and visit an organic grower's seasonal high tunnel that was installed with EQIP funding.

Giulio developed a 595 jobsheet template for tracking mitigation points in accordance with the new Ag Tech Note 5 guidance document and the new national 595 standard. He then assisted Arizona, Alaska, Colorado, New Mexico, Pacific Islands Area, and South Dakota develop their own state-specific new job sheet based on the template. He also worked with Sarah Brown, WNTSC Organic Specialist, to develop an organic-specific 595 jobsheet.

In his role as the nutrient science lead for RUSLE, Giulio worked with the Conservation Delivery Streamlining Initiative team to develop a new Integrated Erosion Tool that incorporates the RUSLE2 and WEPS models while using a single database as the source of management information. He also tested new RUSLE2 science subroutines that will improve the functionality of the model.

Sarah with training participants in MS visiting Pearl River Blues- an organic blueberry operation.

NRCS planners in Kentucky tour an organic pasture-based turkey operation.

Organic Conservation

It has been a whirlwind year for organic technical assistance from the WNTSC. Sarah Brown, Joint Organic Conservation Specialist, worked with 13 states throughout FY 11 to develop and facilitate training. However, state demand for training exceeded our capacity to provide training. The organic conservation specialist position at the WTNSC was created as a two-year contribution agreement with the international organic certifier, Oregon Tilth. Requests ranged from developing a single webinar for a larger conservation planning session to holding numerous multi-day sessions across a state. Soon after Sarah began working in October 2010, it became clear there was significant need for assistance in understanding the Organic Initiative program and eligibility requirements. Sarah worked closely with headquarters to develop materials to explain the process of certification and how it relates to program eligibility. Over the past six months, she has participated on the team tasked with reviewing the program implementation and developing feedback to improve the process. A key priority has been increasing collaboration with external partner groups, utilizing expertise, coordinating training strategy, and increasing communications for consistent outreach and program understanding.

On the technical side, states communicated the need for additional support materials related to organic nutrient and pest management. Working with Giulio Ferruzzi, Sarah developed an Organic 595 Jobsheet for states to adopt and modify as needed. While this is the first step, Sarah hopes to use this document as the basis for a future Tech Note and as a model for the development of future Organic specific jobsheets. While she has been incredibly busy and on the road with trainings, Sarah would like to spend significant time this next year working on developing technical resource documents to support customers.

In the upcoming year, Sarah plans to speak at numerous organic conferences with local DCs and producers to present the Organic Initiative and provide outreach. Additionally, there will be continued assistance available on the development of organic payment schedules, an ongoing Organic Production webinar series, and direct state trainings.

Rangeland Management

Ecological Sites and Forage Suitability Groups

For Pat Shaver, Jeff Repp and Gene Fults (WNTSC Rangeland Management Specialists) the development of Ecological Sites Descriptions (ESDs) and Forage Suitability Groups was a major focus this year. All three travelled far and wide to provide training and collect data.

In January, Shaver travelled to Liakipia region of Kenya to help develop a framework for identifying ecological site concepts on the Mpala Research Center. The Center's staff will test and refined the concepts to begin the process of identifying and describing their own ecological sites.

Closer to home, Shaver continued to work on ecological site concepts and site descriptions with the development of a series of workshops sponsored by

Society of Range Management (SRM) to provide training to diverse groups of ESD users and developers. Shaver held workshops in New Mexico and Colorado with two more scheduled for FY 2012 in Florida and Nevada.

Shaver checks soil profiles to help develop ecological site concepts in Kenya.

Repp led the Riparian ESD Team; Kathryn Boyer (WNTSC Fisheries Biologist), Craig Ziegler (WNTSC Forester), Barry Southerland (WNTSC Fluvial Geomorphologist), and Marcus Miller (National Soil Ecology Branch Biologist) in providing assistance to states developing ESDs for stream riparian systems. The Riparian ESD Team collected data, made presentations, conducted workshops, and provided on-the-job training related to riparian ESD development. They assisted with ESD development in Kansas, Arizona, Utah, North Dakota, Oregon, New Mexico, and Montana. They have completed over 15 "moving water" (lotic) riparian complex ecological site descriptions with more planned in 2012. The Riparian ESD Team at the WNTSC is willing to assist states with development of these ecological sites; contact any of the team members for more information.

Leila Shultz, discusses Basin Big Sagebrush during the session in Kremmling, CO.

In addition to his contributions to a host of range, livestock and forage management related projects and documents, Fults worked with other national specialist on revising Forage Suitability Group descriptions for the National Range and Pasture Handbook (NRPH). He also served on the National Vegetation Classification Standard team attempting to correlate the Classification Standard to Ecological Site Description (ESD) plant community phases.

Sagebrush Ecology

Shaver conducted three workshops on Sagebrush Identification, Ecology and Management in Oregon, Colorado and Idaho. Leila Schultz, professor emeritus from Utah State University, and Roger Rosentreder from the BLM state office in Idaho assisted in the training. Training focused on recognizing that the different sagebrush species occur on unique ecological sites and how they relate to the diverse habitat needs for sage-grouse and other animals.

Interpreting and Measuring Indicators of Rangeland Health

Shaver also conducted three Interpreting and Measuring Indicators of Rangeland Health workshops, in Nevada, Oregon and North Dakota. The cadre of instructors included Chad Ellis, NRCS-CNTSC; Jeff Herrick, ARS; Dave Pyke, USGS; Mike Pellant, BLM and Fee Busby, USU. Attendees included employees from NRCS, BLM, USFS, USGS, NPS, BIA, Great Basin Initiative, universities, tribal representatives, private consultants and landowners.

Natural Resources Inventory (NRI)

Fults led five training sessions for the rangeland On-Site Grazing Land Study (NRI). Thirty-three states are collecting data including 12 of the 13 West Region States. During data collection, plant specialists classify disturbances, resource concerns, and implemented conservation activities while soil scientists identify significant soil features. Because of this interdisciplinary effort, participating employees gain a better understanding of the ecological impact of NRCS conservation practices. Gene notes that the On-Site Grazing Land Study is an overlooked opportunity for field office employees to receive training while accomplishing an NRCS mission objective, and encourages employees to seek out opportunities to assist in the NRI rangeland data collection process.

In addition to the national and state training sessions for NRI data collectors, the WNTSC Rangeland Management Specialists contributed to the publishing of a report on the results of the Rangeland On-Site NRI study. States have begun to use this information to analyze workloads, define program needs, and identify technology gaps.

Marty Chaney, (NRCS-WA) helps Mary Kennedy, (NRCS-WA), identify pasture grass. Mary uses her Tsimschiam heritage knowledge to teach ethno-botanical uses of native plants.

Prescribed Burning

Shaver held two advanced Prescribed Burning workshops in New Mexico and Nebraska where students participated in actual training burns. These workshops ensure that NRCS employees maintained or increased their job approval authority in planning and applying prescribed burning.

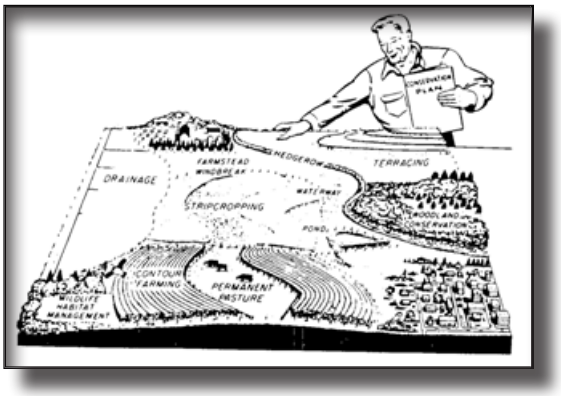
Shaver observes lighting of the main head fire during the workshop in Dora, NM. The areas is prime Lesser Prairie Chicken habitat.

Economics

As the United States economy continues to "cool off" and agricultural producers are watching their investments in farm and ranch improvements more closely, Hal Gordon, WNTSC Economist, had his work cut out for him in FY11 — conservation planner training. Over 250 NRCS employees requested the NEDC course Economics of Conservation Planning. Hal was able to coordinate a dozen courses through NEDC, and personally assisted teaching ten courses with state economists. One of the students attending the economics course summed it up best: "I like a class that gives you something to take home to think about - besides homework." Hal states that "by training NRCS employees to incorporate economic decision making into their field work, we will have fewer cancelled contracts, land users will have more confidence in their conservation plans and we will get more conservation on the ground."

Hal also served on the Regional Payment Schedule Core Team as the agency transitions from "state" to "regional" payment schedules. This has been a challenge because of the "change in direction" from the previous five years, but this change will hopefully help us meet our leadership's goals of more consistent financial assistance payments and program administration agency wide. Hal has also developed the cost data and practice/activity payments for the previous national CSP signups and is developing additional material for the next CSP signup.

Finally, Hal reviewed, updated and developed new economic tools for use by field planners. Many of these tools are posted at the NRCS website:http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/econ. Hal believes that "if an NRCS employee can learn and apply economic tools in their personal life, these skills will spill over into their professional life and they will become more valuable and productive employees."



Environmental Compliance

Meg Bishop, Ecologist and Environmental Compliance Specialist at the WNTSC, continues her quest to effectively integrate NRCS environmental compliance requirements (NEPA, ESA, NHPA, CWA, CAA, etc.) with NRCS conservation planning activities by providing formal training to states as well as direct asssistance on specific projects. This really shouldn't be too tall an order since NEPA's procedural requirements essentially mirror NRCS' "Nine Steps of Conservation Planning," but for a few minor differences. When fully integrated, the result not only completes the anatomy of a plan or 'proposed action', but clearly marks the way forward, whether holistically through a conservation system, or along a progressive path towards the holistic goal. The similarities between NEPA procedure and the NRCS conservation planning process are certainly uncanny since they are a product of 'parallel evolution'. The NRCS (or SCS) planning process, of course, predates NEPA by at least a few decades, and although it may appear that NEPA took its cues from the SCS planning process, there is no evidence to indicate that this is true. The advent of the conservation planning policy within the SCS so long ago was certainly indicative of the kind of creativity, insight, and understanding that existed among our ranks at a time when it was necessary to think broadly, question agricultural norms, and find creative ways to motivate change that not only helped the land, but ensured an operation's financial sustainability. As a result, SCS, along with our conservation partners, was part of a conservation revolution that impacted the agricultural landscape in all states – our tools were our technical expertise, skill

and creativity, a few limited funding options, and passion for the land and the folks that worked it. Today, the primary motivator to adopt conservation measures may be Farm Bill program funding, but the tools used to ensure sustainability of the land and those that work it remain our ability to effectively integrate the Conservation Planning Steps, NEPA, and the technical skills we possess as planners.

To take the effort even further, Bishop is currently working with NRCS California and NEDC to revise and update the existing Areawide Planning Course to better integrate NEPA requirements as well as other environmental compliance requirements (NEPA, ESA, NHPA, CWA, etc.). California and other states in the West are increasingly recognizing the need to resurrect the areawide, watershed, or broad scale planning approach in order to better assist local communities tackle the myriad of complex resource conservation issues and the maze of regulatory permitting processes that are required when implementing actions. A pilot of the revised course will be held in California in the spring of 2012.

Coordination efforts with both the U.S. Fish and Wildlife Service and the National Marine Fisheries Service were also on top of the priority list for Bishop this year. Success with development of the cooperative Conference Report for the Sage Grouse Initiative prompted a similar effort for the lesser prairie chicken in Kansas, Oklahoma, Colorado, New Mexico, and Texas. The development of these agreements with USFWS and the state wildlife agencies continue to facilitate consultation efforts as well as expedite NRCS conservation efforts. Also noteworthy was the completion of an interagency effort to evaluate the effectiveness of permitting processes for in-stream projects in the Pacific Northwest. The resulting Permit Streamlining Report was provided to the Pacific Norwest Federal Caucus and has already made a difference in streamlining many in-stream projects. Now, if we can just complete a programmatic ESA Section 7 consultation with NMFS that covers anadromous fish…..

Fisheries Biology

Kathryn Boyer, WNTSC Fisheries Biologist provided technical assistance to Washington, Oregon, and Idaho with conservation and management of Pacific lamprey, Entosphenus tridentatus. She worked with state and area biologists to develop a Pacific Lamprey Habitat Management Technical Note, Pacific Lamprey Protection Guidelines for NRCS, and a training module for use at field offices. She continued representing NRCS on the Federal Caucus of the National Fish Habitat Action Plan, the Desert Fish Habitat Partnership, and Western Native Trout Initiative. Kathryn worked with Howard Hankin on a Living Waters Initiative to facilitate and expedite stream habitat improvements for imperiled aquatic species. The majority of Kathryn's field time was devoted to providing aquatic ecological expertise for the development of Riparian Complex Ecological Site Descriptions (RCESDs) in Arizona, New Mexico, Utah, Oregon, and Montana.

Marcus Miller and Kathryn Boyer assess stream sediment quality for the upper Gila River Riparian Complex Ecological Site Description, New Mexico, August 2011.

These RCESDs will provide an ecological basis for conservation planning in riparian corridors that are critically important to numerous species of fish and wildlife in the western region and beyond. Accurate completion of RCESDs will assist conservation planners to develop management prescriptions appropriate for sustaining the land's ecological and economic functions over the long term. In FY2012, Kathryn anticipates continued direct assistance and training for states on using SVAP2, designing fish screens and fish passageways, developing technical guidance for conservation and management of springs and spring brooks, and developing riparian complex ESDs in MLRAs in the West Region, especially Arizona and Nevada.

Wildlife Biology

Wendell Gilgert and Meg Bishop assisted the SRC's, State Biologists and State Rangeland Management Specialists in New Mexico, Colorado, Oklahoma, Kansas and Texas work with the U.S. Fish and Wildlife Service to develop a conference report for the Lesser Prairie Chicken. The relationships that were developed during the process of crafting a similar report for the Greater Sage Grouse allowed for smooth development of the report.

Wendell supported efforts by Xavier Montoya to work with an 11-state coalition of wildlife agencies and producer groups to propose a NRCS Black-footed Ferret Initiative to accelerate the reintroduction of ferrets across its historic range.

Wendell continued working on the development of technical products to support the Sage Grouse Initiative by working with Pat Shaver, Leila Shultz from Utah State University along with the Rocky Mountain Bird Observatory and PRBO Conservation Science to develop and produce a Sagebrush Pocket Guide, a companion product to the Sagebrush Bird Pocket Guide.

Working closely with Marcus Miller, the incoming West Region Wildlife Biologist, and several western state biologists, Wendell worked to develop ways to effectively interpretations integrate wildlife indicators and ecological into ecological site description state and transition models. They are working with U.S. Geological Service (USGS) and the Breeding Bird Survey (BBS) to investigate how birds can be used to signal changes in plant community phases and vegetative states.

Civil Engineering

Design and construction review of the Devils Lake Flood Control Levees in North Dakota was cited by Kip Yasumiishi, WNTSC civil engineer, as a significant activity in FY11. Devils Lake is located in a closed basin and lake levels have risen more than 25 feet since 1993 flooding homes and businesses, roads and railways, and thousands of acres of farmland. During the past decade, the lake has expanded from 70 square miles to over 195 square miles.

Yasumiishi was requested to provide technical assistance as part of an NRCS IEPR (Independent External Peer Review) to review work being performed by the US Army Corps of Engineers. The NRCS IEPR is composed of NRCS engineers from NHQ, DCSMC, Spokane Multi-State Design Team, and the WNTSC.

Under emergency conditions a permanant levee project was designed in record time and under budget to combat flooding at Devile Lake, ND.

NRCS has entered into a multi-year agreement with the Corps to provide design and construction review of the $125 million flood control project.

Yasumiishi notes that while the work on Devils Lake is important, he found personal satisfaction in the recently completed landslide stabilization project that he designed while on detail to Guam in 2007.

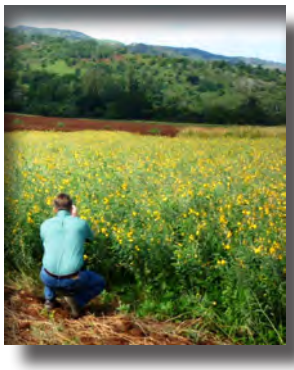
Plant Materials

Jim Briggs, WNTSC Plant Materials Specialist, worked with plant materials program staff throughout the region. In addition to support provided by telephone and e-mail he provided on-site technical support to Plant Materials program staff in Arizona , California, Colorado , Idaho, Hawaii, Montana, and Oregon. Jim also provided on-site technical support to a riparian planting in the Clarkston, Washington field office.

In addition to one on one training with PMC staff, Jim provided information on riparian planting techniques as part of the Streambank Stabilization Workshop held in Silver City, New Mexico. He also provided an overview of the types of technology information available for field offices within the Plant Materials Program national web site during an Idaho PMC workshop for field office staff. Staff from many PMCs in the west also participated in a training workshop coordinated by Jim on proper use of ceptometers, a tool used to determine plant growth rates.

Jim Schroeder, District Conservationist, Clarkston, WA Service Center studies willow plantings on Georges Creek.

Jim is also involved in coordinating or summarizing regional results of several multi-PMC plant trials that are looking at new technology or testing existing technology to allow field office staff to make better recommendations to NRCS customers. Work to evaluate the potential of 'Tropic Sun' sunn hemp (Crotolaria juncea) as a high nitrogen producing cover crop throughout the U.S. continues. In 2011 the Hawaii PMC cultivar 'Tropic Sun' was re-evaluated by the USDA-ARS Poisonous Plant Lab and found, again, to lack toxins typically found in other Crotolaria's. This documented lack of toxins is critically important if a producer plans on feeding any of this green manure crop to livestock. The Tucson PMC is evaluating seed production potential in the Southwest, as development of an inexpensive source of seed is a must, and other PMCs are beginning trials to evaluate performance within specific crop rotations.



'Tropic Sun' green manure crop in Hawaii.

The Plant Materials Centers in Idaho, Colorado, and Nevada are comparing recent and potential releases of bottlebrush squirreltail, a grass used in reclamation work throughout the Great basin region. Results so far indicate that on drier sites (8-10 inches annual precipitation) represented by the Aberdeen Plant Materials Center the release Wapiti Germplasm would be the preferred choice. On wetter sites the releases Fish Creek Germplasm and Toe Jam Germplasm would be good choices. Tusas Germplasm would not be recommended. These recommendations will be refined once data from Nevada and Colorado is obtained and analyzed.

The Plant Materials Centers in Arizona, California, New Mexico, and Texas are comparing alkali sacaton, a highly saline tolerant grass used in revegetation projects, releases to determine relative performance in different environments. So far no statistical differences in biomass yield have been found between the three releases and one experimental line, although green-up periods in the spring are variable. A salinity tolerance trial has begun at the Tucson PMC and additional evaluations will occur over the next year.

Irrigation Engineering

Peter Robinson, Water Management Engineer, cited training as his most significant activity in FY2011. Robinson provided 16 different training sessions throughout the year including webinars and classroom training. "My favorite activity in the training sessions is using a tiny pump I bought at Home Depot for $20 to demonstrate critical concepts in both hydraulics and pumps. I bought enough of these pumps that we can have a great hands-on session. The students learn the concepts themselves, concepts that are hard to convey with PowerPoint."

Robinson especially enjoyed working with states to update their State Irrigation Guides. During his collaboration with Carmella Irwin of Nevada, Robinson updated the Nevada State Irrigation Guide by spending time gathering climatic data to get improved numbers for crop consumptive use. Subsequently the results were input into the supplements in a special Nevada Edition of the Irrigation ToolBox. These Irrigation Toolbox DVDs have an enormous amount of irrigation information on them, including three chapters of Nevada state supplements to the National Irrigation Guide. Robinson also has a major role at the WNTSC in transfer technology, by helping states get information from dusty shelves in the state office, and into the hands of NRCS field personnel, where it will be for effectively used. Robinson says, "I look forward to doing this for more states in 2012."

Washington NRCS employees learn critical hydraulic principles with a $20 pump.

Forestry

For WNTSC Forester Craig Ziegler FY 2011 was a busy year. As projected in the FY 2010 report, forest ecological site descriptions (ESD) was where Ziegler would spend a good portion of his time this year. Ziegler provided training to field office planning staff resulting in awareness of the benefits of forestland ESD's. Training to ESD data collection specialists and providing direct assistance on conducting site reconnaissance and evaluation, field data collection, and site description write-ups claimed most of Ziegler's time in FY2011. States receiving ESD training or direct assistance were Washington, Idaho, Oregon, California, and Arizona.

Ziegler assisted the Oregon State Forester, Misty Seabolt, complete an ESD. They developed the ESD site concept after doing field reconnaissance, then selected plant communities to inventory, conducted the complete vegetation inventory, and finally developed a draft description. "It's very rewarding," Ziegler said, "to see the fruits of your labor develop into a finished product".

Ziegler also worked with other core team members, Rangeland Management Specialist Jeff Repp and Fisheries Biologist Kathryn Boyer, on riparian Complex Ecological Site Descriptions in Oregon and Montana. An intense process, Craig is looking at its application to riparian areas within upland forests.

Overstory and understory vegetation data is collected.

A wildfire set sucession back to seedling stage.

Ziegler also had the opportunity to welcome and work with the new Pacific Island Area state forester stationed in Honolulu, Hawaii. The forester, new to the agency, and Ziegler worked on reviewing national practice standards, specification worksheets and practice implementation protocol, being sure they are adapted to tropical forestry and agroforestry issues. Ziegler looks forward to working with the new forester over the next year.

Pollinators

Mace Vaughan of the Xerces Society's Pollinator Conservation Program continues to provide leadership for advancing the pollinator and beneficial insect conservation goals of the NRCS at the WNTSC. Over the 2011 fiscal year, with support from the WNTSC and funds leveraged from non-NRCS sources, Vaughan and his colleagues at Xerces' provided the NRCS and partner agencies with 75+ presentations and short courses in 36 states (eight in the West). These training initiatives are designed to help conservation planners and program leaders understand the diverse conservation needs of pollinators and how NRCS programs can be used to incorporate pollinator habitat into working landscapes. Xerces staff also provided direct technical support to 24 states (10 in the west). Much of this support was review of plant lists and planting criteria for pollinators, and many of these lists were for CRP lands enrolled in CP 42, the CRP Pollinator Enhancement.

In addition to this general technical support, Mace is working with Giulio Feruzzi, Conservation Agronomist at the WNTSC, and the WIN-Pst team on a pollinator pesticide risk mitigation technical note. This tool will help conservation planners landowners, and IPM professionals to work together to develop collaborative pest management plans that effectively maximize crop protection while also reducing pesticide harm to pollinators. In addition to general guidance on reduced risk pesticide strategies, the technical note will provide guidance on how practices, such as windbreaks, can protect pollinator habitat from adjacent pesticide use.

Among the many pollinator-related accomplishments by the WNTSC over the past year, three particular highlights really stand out to Vaughan. The first is a new Pollinator Habitat Assessment Guide, modeled after the NRCS Wildlife Habitat Evaluation Guides. This tool is not yet an official technical note for any state, but already has proven its value for agency training and farm planning. Currently, at least three western states are reviewing the guide for official adoption.

A second highlight was a special edition of Rangelands, the journal of the Society for Rangeland Management. The WNTSC's Wildlife Biologist Wendell Gilgert, along with Vaughan and Scott Black, Executive Director of the Xerces Society, brought together experts from across the western United States to contribute a series of articles on pollinator conservation in rangeland environments. These articles addressed everything from rangeland management for beneficial insect populations, to the economic benefits of range areas on adjacent crop pollination. To abtain a copy of the special Rangelands edition, please contact the WNTSC.

A third highlight is a grant from the USDA's Sustainable Agriculture Research and Education program's Southern Region (SSARE). This grant specifically highlights the partnership between the Xerces Society's Pollinator Conservation Program and the NRCS, and leverages over $100,000 in non-NRCS funding to support NRCS training across the entire southern tier of the United States. Xerces now has funding from all four SARE regions, including the West, to provide outreach and support specifically targeting NRCS conservation planners. "Our partnership with the West National Technical Support Center has allowed us to not only assist the western region states, but also leverage private and federal funding to bring technical assistance to the entire country," says Vaughan. "During the upcoming fiscal year, my team looks forward to conducting Pollinator Conservation Planning Short Courses in the western states where it has not yet been held, and continuing to provide the tools and information those states need to implement pollinator conservation projects."

Pollinator conservation planting developed in New Hampshire with original technical support through the West National Technology Support Center. Photo by Don Kiersted, NH NRCS.

Soils

Steve Campbell, WNTSC Soil Scientist, provided a wide variety of assistance to the West Region States in FY 2011. New calculations have been developed in the National Soil Information System (NASIS) for the soil erodibility factor (K) used in RUSLE2 and the soil loss tolerance factor (T). Campbell assisted five states in the West Region to analyze the calculated values for these factors compared to the current stored values. These analyses assisted the States in determining potential impacts of the new calculated factors to delivery of Farm Bill conservation programs.

Campbell also assisted six states in the West Region on the State Resource Assessment effort. He created statewide soil survey databases that were used to help identify areas with particular resource concerns. These resource concerns included sheet and rill erosion, wind erosion, compaction, organic matter depletion, soil quality degradation from salts and sodium, and water quality related to nutrients and pesticides.

Campbell conducted a training session in Wyoming on using soil survey spatial and tabular data, and other spatial data such as climate and elevation, to develop and correlate ecological sites. This is a 2-day training session where participants work through nine modules using MS Access, ArcGIS, and NASIS. An optional third day is available where Campbell works with participants on projects specific to their area.

Campbell assisted California with a "Soils for Conservation Planners" workshop. The training was designed to help conservation planners evaluate soil properties, both inherent and management affected, as an integral part of conservation planning. Most of the session was hands-on in the field. Topics included identification of major soil horizons, soil texture, structure, root-restricting layers, and indicators of high water tables.

Assistance was provided to Washington state in the development of a nitrate leaching potential soil interpretation in the National Soil Information System (NASIS). This interpretation uses climate and soil properties to rate soil map unit components for inherent nitrate leaching potential. The interpretation is currently being reviewed by Washington field office staff and should be finalized by December 2011.

Campbell also worked with soil scientists, agronomists, and resource conservationists in Idaho, Montana, and Washington to develop hay and pasture productivity indices in NASIS for Major Land Resource Areas 9, 43A, and 44A. These indices provide numerical relative productivity ratings for soil map unit components ranging for 0.00 to 1.00 for grass and alfalfa hay and pasture.

Participants at "Soils for Conservation Planners" course in Modesto, California, May 2011.

NATIONAL TECHNOLOGY DEVELOPMENT TEAM ACTIVITIES

Air Quality and Atmospheric Change Team

The Air Quality and Atmospheric Change (AQAC) Team has been actively engaged on several fronts over the past year. There has been considerable Departmental attention paid to greenhouse gases (GHGs) and carbon sequestration, including the release of Departmental Regulation 1070-001 that instructs agencies to conduct an assessment of their vulnerability to climate change, and develop adaptation strategies. In response, the AQAC Team developed the "Preliminary Assessment of USDA-NRCS Vulnerability to Climate Change and Adaptation Actions" that was released from the Chief's Office in early September. This document also became the NRCS contribution to the broader USDA vulnerability assessment that was submitted to CEQ on September 30th.

Paralleling this effort in vulnerability assessment, the AQAC Team has been an agency leader in GHG work, including the development of a web-based ranking of the GHG and carbon sequestration benefits of NRCS practice standards. This ranking is available at the NRCS Air Quality and Atmospheric Change website. The Team has also been charged with leadership of a coordination group that will oversee the synthesis and integration of the new GHG Conservation Innovation Grants (CIGs). There are nine CIGs that will focus on demonstrating GHG and carbon sequestration farm-level actions, and the development of carbon credit and market methodologies. The goal is that these projects will serve as examples and catalysts for broader-scale adoption throughout many regions of the country and across agricultural sectors, with NRCS taking a lead role in this process.

Very much related to these GHG efforts, the AQAC Team has continued its project management leadership role for the CarbOn Management Evaluation Tool (COMET) with Colorado State University. Earlier this year a new version of the popular COMET-VR tool was released, simply called COMET2.0 (www.comet2.colostate.edu). This expanded version of COMET-VR includes options for agroforestry operations, provides nitrous oxide (N2O) emissions estimates, and has a greatly expanded set of options, along with a new and improved user interface. The team is now busy overseeing work on the next version that will be called COMET-Farm™, which will be a whole-farm GHG accounting tool (including livestock, methane, energy, etc.). COMET-Farm™ is expected to be released, at least in an initial version, in the spring of 2012.

In addition to these important atmospheric change-related activities, the team also has been actively involved in the development of new National Engineering Handbook chapters on air quality. The introduction chapter is now available, and draft versions of chapters on odors as well as Greenhouse Gases were developed in 2011. These should be available early in 2012.

The AQAC Team provided leadership on air quality-related planning criteria and resource concerns for the Conservation Delivery Streamlining Initiative (CDSI). AQAC-related resource concerns were officially condensed from 12 to four, and the planning criteria are now being integrated into the agency's new conservation planning tool that is expected to be released in 2012.

Team members have provided leadership on climate data support for the Wind Erosion Prediction System (WEPS), work on the interagency smoke committee (SmoC), all air quality-related pages for the NRCS web migration, staff support for the USDA Agricultural Air Quality Task Force, and agency leadeship on all interagency reviews of proposed EPA air quality rules.

The Air Quality and Atmospheric Change Team - Greg Johnson, Evelyn French (Office Assistant), Greg Zwicke, Adam Chambers, and Susan O'Neill.

Energy Team

It was a very busy year for the Energy Technology Development Team. It started in August, 2010, when Chief White signed a decision memorandum adopting two new resource concerns related to energy conservation and renewable energy production. This led to the urgent need for policy revision, new practice standards, training, fact sheets, software changes, state coordination, and more. The team helped formulate the implementation strategy and led many of the efforts to execute the strategy.

Solar panels provide energy to pump water to livestock.

In October, 2010, the General Manual was revised to adopt new policy to "recognize the national goal of reducing reliance on fossil fuels through energy conservation and replacement of fossil fuel-based energy with renewable energy sources" (GM 450-409-A, Amend. 25 October 2010). The Energy Team developed an implementation strategy and a number of working groups got started. The next step was to issue National Bulletin 450-11-6 on November 29, 2010, which formally issued the two new energy resource concerns and announced that they were effective for FY11.

A large effort to develop new practice standards and review and revise existing standards was completed in May when two new standards were issued (374-Farmstead Energy Improvement, and 716 – Renewable Energy System) and 28 existing practice standards were revised to add energy-related purposes. Internal policy differences arose and much effort was spent on drafting deliberative papers on the limits for financial assistance for renewable energy conservation. A major training effort was launched that resulted in eight national webinar training sessions. Webinar recordings are available at the S&T Training Library. In addition, there was a national directive that all field technical staff complete three energy training courses available in AgLearn. The national Conservation Practice Physical Effects matrix was revised to incorporate the two new resource concerns and the software for SmarTech was modified to accommodate the two new resource concerns.

Throughout these efforts the Team worked closely with the state energy contacts. Toward the end of the year the team worked closely with the states to develop practice payment schedules for key practices. In addition, the NRCS energy awareness web-based tools were updated. These tools allow farmers to get a quick assessment of the potential energy savings that could result from conservation measures.

Looking ahead to FY12, the Team is planning to continue developing technical guidance on specific practices and draft new energy practice standards, focusing on those technologies most frequently recommended in farm energy audits. The Team will continue to assist states with scenario development for payment schedules focused on energy-related practices. Training will be a major effort in 2012, with emphasis on energy audits and energy implementation strategies. Distance learning will be the primary mechanism for training; however, one regional training session involving Montana, Wyoming, Colorado and Idaho is currently scheduled for Nov. 29-30, 2011, and the Team will make every effort to accommodate state requests for training assistance.

Water Quality And Quantity Team

The Water Quality and Quantity Team (WQQT) made tremendous contributions to conservation and the agency in fiscal year 2011. Our team assisted in over 150 formal requests from National Headquarters, the states and even other agencies addressing issues from irrigation and dam safety to river restoration and calculating rainfall distribution. All three offices (Beltsville, Maryland, Amherst, Massachusetts and Portland, Oregon) of the WQQT were fully engaged in technology development and deployment. The Team delivered over 50 national training sessions across the country. The Team serve on numerous National Education Development Center sponsored instructor cadre's as well as assist on State and Technology Center led training. Conservatively the Team effectively delivered training to hundreds and hundreds of NRCS staff throughout the country.

One of the largest efforts the WQQT is involved in is the new Conservation Delivery Streamlining Initiative (CDSI). The Team has team members on several of the water quality specific technology transition teams helping to sheppard today's conservation tools into the integrated CDSI tool of tomorrow. It is imperative that the basic functionality of today's water related technology resides in the planning and assessment capabilities in the emerging CDSI. To that end we helped

to craft the Science and Technology Transition Plan to CDSI. In this roadmap, a clear path is forged between the current natural resource assessment tools and the state of the art computer technology being built.

One of the many reasons we are so heavily involved with the CDSI stems from our current responsibilities we have for well over 50 of the agency's computer programs and water conservation technologies. The Team continues to develop new technology like the Nutrient Tracking Tool while maintaining stalwart applications like the Windows Pesticide Screening Tool and the Engineering Field Tools for hydrology. In this transition period before the agency has a fully functional CDSI tool many of the existing tools have issues that need to be addressed as well as upgrades that users have suggested. Applications like the Animal Waste Management software were augmented this fiscal year to meet user needs and the oversight requirements.

Dr. Barry Southerland discusses river dynamics in the Cheney Watershed in Kansas.

Students key out aquatic macro-invertebrates in WQQT led NEDC courses.

Students gain water quality analysis experience in the field with WQQT Training.