Taylor Ranch Field Station Annual Report

Activities, Projects, & Accomplishments of 2007

By Jim Akenson and Holly Akenson, Managers/Scientists

February 20, 2008

Highlights of 2007

2007 was a year of expanded collaborations, established program continuation and completion, and a new construction project. For the year we recorded 1128 user days and 125 different overnight field station visitors. Among these visitors, 11 were faculty, 23 university students, 42 other students, 38 researchers, and 11 other users. The first project of 2007 was the installation of the fish screw (rotary-type) trap. This is part of our Taylor Ranch collaboration with Idaho Department of Fish & Game to monitor anadromous fish movement on Big Creek. Screw trap components were air-lifted into close proximity of Big Creek across from the airstrip at Taylor Ranch. Assembly and in-stream installation was completed and the trap was catching fish by May 21st. The trap operated until November 13th for a total of 173 days of data collection. A total of 19,512 fish were captured in the screw trap. A total of 5,503 Chinook salmon and 2,425 steelhead trout, juveniles for both species, were PIT-tagged and put back into Big Creek. This has been a very successful collaboration and should greatly enhance fish research opportunities by UI faculty and students. Basically all of the research and education programs established in recent years continued in 2007. Dr. Jim Peek (UI) and Dr. Wayne Minshall (ISU) completed 20 year monitoring data sets in 2007 on rangeland vegetation production (Peek) and influence of fire on aquatic invertebrate and stream ecology (Minshall). The major facility project of 2007 was planning and interior demolition for the Dave Lewis Cabin historical renovation. Restoration construction is scheduled for April/May of 2008. During late June we had distinguished visitors in UI President Tim White and family and CNR Dean Steve Daley Laursen and family. It was the first time for Tim and Karen White to see the Taylor Ranch facilities and learn about the projects and programs going on at the field station. Another noteworthy visit was by Mary Acker and Bill Wallace to make a final "pre-donation" evaluation of the Lewis Cabin renovation project. This was a very productive visit late last October. It turned out to be Bill Wallace's last look at the project, and Taylor Ranch, as he passed away suddenly in January of 2008. Bill was great person, always spirited, knowledgeable, and generous...he will certainly be missed by his friends and colleagues. He was one of the very last living connections to Dave Lewis and the homesteading era on Big Creek. The financial donation made by Mary and Bill will be a testimony to his early days living at Cabin Creek and visiting the Lewis Place, which was later called Taylor Ranch.

Educational Activities

Graduate Students:

There were 6 graduate students working on projects based at Taylor Ranch Field Station last year. Three University of Idaho students and one from Idaho State University conducted field research from TRFS in 2007. Additionally, two graduate students (one UI and one ISU) are in wrap-up phase from their projects that were based from TRFS in 2005 and 2006. This year Dr. Brian Kennedy had two graduate (M.S.) students conducting research on anadromous fish. Kara Cromwell completed her second and final field season looking at juvenile Chinook salmon. The research she is conducting is for a proposal titled, "Spatial variation in juvenile Chinook habitat quality." Her study on Big Creek has focused on juvenile Chinook food webs, or how much food is available, what is selected, and how growth and survival of Chinook are affected. Dr. Kennedy's second graduate student working on Big Creek is Ellen Hamann. Ellen's study is on "Steelhead rainbow trout life history variability in the Middle Fork system." Her work is connected to information being collected by the new screw trap. Dr. Charles Peterson's graduate student Javan Bauder (M.S.) is from ISU. Javan's proposal is titled, "Movement and habitat selection of prairie rattlesnakes in the Big Creek drainage of the Frank Church Wilderness." Javan has used surgically implanted telemetry units to follow and document the movements and habitat use of 15 snakes. The 2008 field season will be Javan's 3rd and final field season. Dr. Lauren Fins' crew completed a third field season monitoring whitebark pine in the high elevations around TRFS. In 2007 master's student Ben Hoppus led the survey crew collecting data in 37 previously established plots across two populations of whitebark pine. Ben will be back in 2008 and he will be using data from this field work for his master's thesis. The two past master's projects nearing completion are being conducted by Dr. Jeff Braatne's student Breezy Jackson (UI) and Dr. Colden Baxter's student Rachel (Wilkinson) Malison (ISU). Breezy has been researching the interactions between aquatic and terrestrial systems. She did riparian vegetation surveys on 12 tributaries of Big Creek and monitored the terrestrial plant and insect litter falling into the stream. The full completion of her project has been hampered by the untimely passing of her major professor Dr. Jeffrey Braatne. Breezy has been receiving project advice from Jeff's post-doctoral student Mazeika Sullivan and Dr. Colden Baxter from ISU. Her thesis will be completed in 2008. Rachel has completed her thesis defense and is submitting manuscripts for publication for her project titled, "Aquatic-terrestrial connectivity in a wilderness watershed: do emerging stream insects fuel riparian food webs following wildfire?" Her research has focused on linkages between aquatic and terrestrial habitats that have been affected by fire in the last 5-10 years. She has researched this relationship on 16 tributary streams of Big Creek with various degrees of burning. She used emerging insects (caught in floating net traps) as the barometer for energy output. Dr. Ben Crosby and graduate

student (M.S.) will start a new project measuring stream flows and tributary contributions to Big Creek.

Undergraduate Students:

In 2007 Jim & Holly Akenson supervised 4 Bleak Wilderness Interns, which is one more than usual. One reason we selected an additional Bleak Wilderness Intern is because we did not have a DeVlieg Undergraduate Scholar this past summer. The Bleak Endowment provided funding for 3 students and the DeVlieg Foundation funded the fourth position. The four interns were: Scott Fereday, Tracy Buchanan, Mindy McAllister, and Luke Cerise. These four CNR students had a busy summer of hands-on activities learning to do research and monitoring, wilderness skills, making presentations, and writing scientific reports. Supervised field activities included monitoring 2 wolf packs for reproduction, noxious weed survey and report on effects of 10 years of control by hand-pulling, bear density monitoring using remote cameras, archeological surveys at TRFS and at Dave Lewis's old cabin site at Goat Creek, participation in the digital tools workshop, and assisting on range vegetation and stream ecology monitoring projects.

In summer 2008 there will be 3 Bleak Wilderness Interns and 4 Undergraduate Research Scholars working from TRFS. Two strong (faculty backed) proposals submitted to TRFS for the UI DeVlieg Undergraduate Research Scholar program were selected for funding. One addresses post-fire climate effects on coniferous seedling regeneration (Dr. Katy Kavanagh and student Eric Clippenger) and the other an examination of Lewis's woodpecker reproduction (Dr. Kerri Vierling and student Amber Lankford). A third UI undergraduate project will evaluate Lewis' woodpecker nesting habitat (Dr. Kerri Vierling and student Tatiana Gettelman). Funding for an ISU DeVlieg Undergraduate Research Scholar will support a project titled, Washed away: Quantifying impacts of recent fires on sediment delivery from Big Creek catchments (Dr. Ben Crosby and student Eric Carlson).

On-going Research:

- Gap Analysis crew, field "ground-truthing" aerial photography (Aycrigg & crew).
- NOAA fisheries, pit tagging juvenile Chinook salmon for survival monitoring (Achord & crew).
- NOAA fisheries, in-stream nutrition testing from salmon carcasses (Sanderson & crew).

- ISU stream ecology, aquatic invertebrate sampling on established surveys (Minshall, Baxter & student crew).
- IDFG fisheries, salmon redd count and snorkel survey (Apperson & crew).
- IDFG fisheries/UI screw trap operation and data collection (IDFG-Apperson/Ackerman, TRFS-CNR-Akenson/Kennedy/Hamann.
- TRFS/Nez Perce Tribe/IDFG wolf monitoring of reproduction/survival from den checks and observations (Akenson's & interns).

Monitoring:

Two TRFS based long-term monitoring efforts were completed this past summer, with publications pending. Dr. Wayne Minshall researched stream ecology, pre and post wild-fire, from 1987 to 2007 on Big Creek. During this same 20 year period Dr. James Peek documented rangeland productivity (grass biomass) on repeated transects in the drainage. Both of these efforts were long enough in duration to span periods of drought and multiple wild-fire episodes. A third long-term monitoring activity has been done by Steve Achord and NOAA Fisheries. They have been PIT-tagging juvenile Chinook salmon on and near TRFS for over 15 years to track the survival of out-going fish through the lower Columbia hydro-electric facilities. Another formal monitoring activity is the annual bighorn sheep ground-count that coordinated by Jim & Holly Akenson in partnership with the Idaho Chapter of FNAWS (Sheep Foundation) and IDF&G. Last year was the 7th year of this cooperative survey. A less formal monitoring effort is our daily wildlife observation journal which we have kept for over 18 years. The journal has become a very valuable index for measuring change given the two major "change variables" of large scale fire and wolf population establishment.

Collaborations:

A primary goal for program growth at TRFS has been the collaborations between TRFS-CNR-UI and other organizations and institutions. These collaborations have provided added value to each partner's financial or in-kind project contributions, and created new research and educational opportunities for UI students, faculty, and partners. An important component of these agreements is our policy of open access to data generated through these cooperative efforts. The following are collaborations that are either ongoing or in a development phase:

- UI/TRFS – IDFG, (with MOU) Fish screw installation and 7 months of operation for steelhead and salmon tagging and measuring.
- UI/TRFS – NOAA Fisheries, (with MOU) Fish detection antennas and in-stream monitoring station. NOAA is working on a second generation of PIT-tag detectors (antennas) that are anchored to the stream bed.
- UI/TRFS – ISU Geology, (Developing MOU) Stream gaging station on Big Creek, preferably connected to the Big Creek Bridge (owned by the USFS, with either side connecting to UI/TRFS property).
- UI/TRFS – USFS/Payette Nat. Forest Cultural Resources, (with MOU) This involves getting TRFS interns actively involved in cultural resource inventories that benefit the USFS Payette Forest Heritage Program and provide hands-on field experience for students.
- UI/TRFS – Nez Perce Tribe-IDFG, (agreement) monitoring wilderness wolves for reproductive success and pack occurrence and size.

Donors:

Donations that come from individuals and foundations are responsible for much of the program success and facility improvement occurring at TRFS during 2007. Our donors vary in both the amount of contribution and time-span of support. All the donations for 2007 have been wonderful, whether a one-time donation for specialized equipment or a year-to-year educational offering, we greatly appreciate the generosities of the following people and foundations:

Mary Acker and Bill Wallace donated the money necessary to renovate the historic Dave Lewis Lodge. As described under facilities this project will accomplish both making this building more functional and restore the classic "old west" appearance of this 100 year old structure.

The DeVlieg Foundation, Janet and Jim Pope, has generously continued supporting many student research and educational programs, and encouraged additional faculty and professional involvement at TRFS through financially supporting the visiting professionals program.

Clara Bleak, continues supporting the Bleak Wilderness internship which is TRFS's flagship undergraduate learning opportunity

Dan and Mary Worsham have committed their professional services to replace several TRFS metal roofs, and construct the roof on the historical Lewis Cabin as part of the renovation project.

Margaret Ely donated the money for purchasing two digital remote cameras for monitoring wildlife occurrence around TRFS and to be used for student training.

Friends of Taylor Ranch Endowment was started in 2006 to establish a source of sustainable funding for educational and research activities at TRFS. The endowment contains $50,000.

Facilities:

In 2007 the Assistant Manager focused on several building improvement projects, including constructing a new storage shed near the head of the airstrip and remodeling the east side of the Hornocker Cabin for better housing conditions. Wireless internet is available around the facility, with some locations working better than others. We continued our Globalstar telephone service through 2007, but we are strongly considering dropping this as the service works only 25% of the time.

On a few occasions during 2007 we had more visitors than space. In these cases we use wall tents on elevated platforms (3 available) for "spill-over" housing. In the near future we will need to complete, or implement, the sewage management plan that Secesh Engineering designed during construction of the DeVlieg Cabin.

Outreach and Education:

- Jim & Holly Akenson: In the spring of 2008 we put on a horse and mule packing clinic for IDF&G conservation officers from the eastern side of Idaho.
- Dr. Jim Peek: This was his last year for teaching the enrichment class in Wilderness Ecology. The class has been very popular in the past, providing an opportunity for non-traditional students to learn about ecology and stay at TRFS. It will be offered next year by Dr. Jim Kingery.
- Debbie Fereday: McCall High School Environmental Science class.
- Dr. Ben Crosby (ISU): put on a digital tools workshop using one of our visiting professional grants through the DeVlieg Foundation. Basically everyone present at TRFS took the class and Janet DeVlieg Pope also participated.

Upcoming Activities:

- Lewis cabin renovation: Now that the interior demolition is done, the next phase is to apply the reconstruction plan. In March 2008 there will be a trip into Taylor by Craig Eldredge (from Facilities) and John Burkenbine (contractor) to evaluate structural issues and project costs. This project will be broken into 3 phases to more easily track expenditures.

- Hiring Assistant Manager: We plan to have the assistant manager on-site by April 15th.
- By early June we will have the summer crew assembled at Taylor, which will include: 3 (UI) Bleak interns, 4 undergraduate researcher (3 UI, 1 ISU), 4 graduate students (3 UI, 1 ISU), and numerous visiting faculty and agency professionals.
- Enrichment class: Drs. Jim Kingery and Steve Bunting will take over the teaching of this class from Dr. Jim Peek. Jim and Holly Akenson and Dr. Brian Kennedy will also work with the class. This course will occur during the 3rd week of May. It has been an extremely successful offering at TRFS.
- Isaac Babcock and Bjornen DuPont are completing plans for a BBC film production, which will feature the uniqueness of the River of No Return Wilderness.
- Jim and Holly Akenson are involved with organizing the 9th Mountain Lion Workshop which will occur in Sun Valley, Idaho. We are collaborating with IDFG and the Selway Institute in hosting this event. The Workshop is a very significant conference for TRFS as the theme will involve highlighting the 4 decades of cougar research initiated by Dr. Maurice Hornocker, which was based at TRFS.