Bonneville County Weed Control

605 N. Capital Idaho Falls, Idaho 83402

office 208-529-1397 fax 208-529-1398

Quarterly Report for July 1, 2002 thru September 30, 2002

Cooperators Activities

Bonneville County Weed Department

July 2, 2002 – KUPI Radio talk show. Discussed the events and reasons behind the NASA BAA grant and how it would benefit all landowners in the area.

July 12th – 16th – National Association of Counties Annual Convention (NaCo), New Orleans, La. Traveled to present our BAA program to other counties at the conference.

July 30th – Upper Snake River Cooperative Weed Management Area Board meeting. Discussed current status of project with other Weed Professionals.

August 6th & 7th – Idaho Weed Control Assn. Weed Summit Board Meeting. Met with Board members from other weed organization to discuss future direction of weed control in Idaho.

August 12th and 13th – Matt and Jared travel to Soda Springs to work with Caribou County and BLM on GPSing weeds on 600 acres of land.

August 21st – met with Electronic Data Solutions to learn how to utilize Arc View software more efficiently.

August 27th – Trish and Holly, Radio talk show hosts. Discussed NASA project live and how it would benefit all landowners in the state.

August 28th – Twin Falls County Fair

August 31st – September 7th – Eastern Idaho State Fair – Had display at booth that illustrated project.

September 17th – Meeting with all cooperatives with the grant. At this meeting, held in Boise, we discussed current status of grant. Topics covered included, financial report, data acquisition, and year two requirements. Also discussed Ada County Weeds' needs for data and cooperation in the upcoming year. BSU will cooperate with them for local needs. For financial report for year one see attached page.

July 2nd - Crew in the field to perform analysis with the Fieldspec Pro Portable Spectroradiometer (ASD) unit. Took samples at 10:00am, 11:00am, 12:00pm, 1:00pm, and 2:00pm. Took samples of the Leafy Spurge, and surrounding vegetation such as Sagebrush, Junipers, grasses, and other forbs. Also took readings on Spotted knapweed on another site.

605 N. Capital Idaho Falls, Idaho 83402
office 208-529-1397 fax 208-529-1398

The two crewman that we brought on for this project worked 40 hours per week visiting with landowners, spraying weeds, and locating other patches of weed for future reference.

Idaho State University

Keith Weber, Pocatello campus

Quarterly report:
During this time period I
1) Attended a year end meeting in Boise
2) Consulted with Jacob Mundt
3) Helped coordinate data acquisition contracts and flights.
4) Helped coordinate data download and server upload
5) Helped coordinate receipt and dissemination of satellite data
6) Scheduled a presentation forum for Jacob Mundt regarding BAA research at The GIS Center's public outreach event (November 21st).

I think this covers it in a nutshell.

October 1, 2002

4th Quarter Report

Idaho State University

Nancy Glenn

Personnel Involved:
Jacob Mundt
Keith Weber
Nancy Glenn

Activities:
- Completed field data collection for Summer 2002
    - ASD field spec readings on sagebrush, leafy spurge, in various sized training areas (5 m to 20 m)
    - GPS readings on training areas
    - File transfer of ASD and GPS data to ISU's data server
- Completed remote sensing data acquisition for Summer 2002
    - GPS data of flightline swaths
    - Organize data collection and data download on ISU's server for
        - HyMap
        - Quickbird

        - AquilaVision
        - 3DI
- Began preliminary remote sensing data analysis
    - HyMap hyperspectral data
        - Process raw imagery for geocorrecting reflectance data with geometric lookup table from HyVista (ongoing)
- Acquired Hyperion data scene from IDWR and are investigating its applicability in this study based on pixel and spectral resolution and areas covered (ongoing)
- Investigating opportunities to acquire AVIRIS data in Summer 2003 (ongoing)
- Maintained and updated website and built access to data
    - Developed secure web server for all data
    - Uploaded all field data and remote sensing data for all partners (Bonneville County, U of I, ISU, BSU to access)
- Revised and resubmitted budget for Year 2 to Bonneville County
- Met with BSU to coordinate outreach activities including developing a hands-on training workshop for county employees in GIS and GPS

Attended end of year review on Sept 17, 2002 to review data acquisitions from summer 2002 and plan to analyze remote sensing data for Fall 2002

University of Idaho

Larry Lass

For this reporting quarter I have spent about 80% of my time working on the NASA project. I have been in the field two weeks during data acquisitions and the remaining time involved data processing, programming, attending the Boise meeting and report writing. I have not had a speaking engagement that focused on our NASA grant because I have been waiting for data to present. I am planning on presenting at the Western Society of Weed Science Meetings in March 2003.

Boise State University, Ada County Weed Control – Attended fall planning meeting in Boise.

Bureau of Indian Affairs, and INEEL have not performed tasks for this project at this time.

Data Acquisition

July 1, 2002 **HyVista** re-flew the project area due to discrepancies in the data.

July 11th, 2002 - First flight of itres Research Limited. Due to fires north of the site, the flight was challenged. It was determined that the flight could take place. Jared and Matt,

605 N. Capital Idaho Falls, Idaho 83402
office 208-529-1397 fax 208-529-1398

Bonneville County, were in the field with the ASD unit to perform color matrix ground truthing. They also placed 60 X 60 white and 60 X 60 black tarps out for color reference.

July 11, 2002 – First flight of **RadarSat** (Digital Globe)
.

July 26th-27th – Second Flight of **itres Research Limited**. Partially clouded skies presented an obstacle, but through two days of flying they were able to obtain data. Jared was in the field for ground truthing.

July 29th – Second flight of **RadarSat** (Digital globe)

July 29th – (**3)di** Flew using the AISA technology. This led to a challenge since it was not coordinated with our office, thus no ground data was acquired with the ASD unit.

August 13th – Third flight of **RadarSat** (Digital globe) technology. This may also prove to be a challenging data collection process due to the lack of knowledge that the flight was taking place

Data acquisition was an interesting process for our department. With a normal work schedule of controlling weeds Monday thru Thursday, it was difficult to get the two employees to want to work over on the weekends to be in the field to ground survey. We also did not take into consideration the difficulty of cloud cover that would detain the flights from happening. It was wonderful to meet some of the pilots and technicians and see what it takes to acquire the data.

At the end of the 4th quarter we received no expenses from the University of Idaho, Ada County Weed, INEEL, or the Bureau of Indian Affairs. The universities are well under budget for what they had proposed and this unspent money will be carried over to next year. Bonneville County has come under the proposed budget on employee salaries due to the inability to find someone that would work on the project for 6 months. Most of our seasonal employees are college students and are only available during the summer months. I have kept one seasonal employee and converted him over to do some of the NASA grant.

There is great public interest for the use of the NASA technology to help manage weeds in the Northwest. Many of the agencies that we work with are keeping close to our research in hope of it being a great asset to their weed program.

Bonneville County Weed Control

605 N. Capital Idaho Falls, Idaho 83402
office 208-529-1397 fax 208-529-1398

University of Idaho Progress Report for NASA BAA
October 8, 2002
Tim Prather and Larry Lass

Ground-based data acquisition

ASD spectral radiometer data were compiled from the field measurements for use in atmospheric correction and in classification of vegetation. Data were shared with ISU co-investigators. Initial attempt to read data dictionary for GPS data used for classification development and validation was not successful. Awaiting update of GPS data for establishment of classification and validation sites.

Airborne and Satellite data acquisition

Hyperspectral data were acquired from Aquilivision/ITRES at two different flight dates. . Both data sets were georeferenced but not atmospherically corrected. Initial classification demonstrated that leafy spurge was detected. There were classification errors with some areas within agricultural fields classified as containing leafy spurge. We just received the radiometric and atmospheric corrected data and we are downloading those data for distribution among the co-investigators.

Hyperspectral data were also provided by 3DI. Initial look at 3di data looks interesting but may not be practical at this high resolution if a large area needs to be surveyed. Plane movement resulted in wavy edges of the flight line.

Quickbird data were received with radiometric correction. We started to process Quickbird data by first running atmospheric corrections using dark and white values. The corrected data should allow the handheld ASD data to be used for classification. We should have a classified image the middle of October.

Initial look at Hyvista hyperspectral data showed some positional errors in the data. Jacob at ISU is rerunning the data to reposition based on recommendations of Hyvista. Once the data has been geocorrected ,he will distribute data so that classification can begin.

Planning

We met with other co-investigators to set strategy for data acquisition, data sharing and processing of data.