WASHINGTON STATE UNIVERSITY

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Farming for Wildlife, Skagit Delta: The Nature Conservancy

Description

The Farming for Wildlife (FfW) pilot is investigating the ecological, economic, and agronomic effects of three farm management practices: flooding, sod harvest, and grazing. The primary goal of this pilot is to determine whether certain crop rotation practices may benefit soils and farmers while also providing temporary wetland habitat for shorebirds and other wetland dependent species. Experimental treatments have been implemented on over 200 acres at three privately owned farms in the Skagit Delta: the Hedlin Farm, the Mesman Farm, and the Thulen Farm. Baseline monitoring was completed in the spring of 2007, and the habitat rotation (flooding) and the two crop rotations (sod harvest and grazing) were applied beginning in June 2007.

Figure 1 Thein farm 2nd year of the wetland rotation, winter 2009.

Progress

- Shorebird, invertebrate, soil and vegetation sampling were completed for the Winter 2008 sampling period
- Assisted NRCS in developing a special project funding scenario for wetland rotations under the Wildlife Habitat Enhancement Program (WHIP)
- Contracted with Hector Saez, WSU Resource Economist to conduct economic feasibility assessment for wetland rotations
- Hector Saez interviewed Skagit farmers and developed an Enterprise budget for potato production that will be used to assess economic feasibility of wetland rotations for potato growers
- Graduate student supervised by Dr. Debbie Inglis, WSU began in January 2009 to examine the effects of soil saturation on potato pathogens
- Presentation of preliminary results at the Western Washington Potato Conference at WSU Northwestern Washington Research and Extension Center in February 2009
- Presentation of preliminary results at the Western Hemisphere Shorebird Meeting in Mazatlan, Mexico in March, 2009

Figure 2 Mesman Farm Flooded site August 2007. **Mesman Farm flooded Site August 2008.**

Known Outcomes to Date:

- Flooded fields have provided significantly more habitat for shorebirds during the migration periods than either grazed or harvest fields
- Species of conservation concern commonly seen using the flooded fields include Greater and Lesser Yellowlegs, Long-billed Dowitchers, and Western Sandpipers
- Substantially fewer shorebirds used the flooded sites during fall migration in 2008 compared to fall 2007
- Total Nitrogen has increased at a faster rate on flooded fields than either grazed or harvest fields
- pH and soil microbiology does not appear to be negatively impacted by the flooded treatments

Future Work

In May 2009, following the spring migration of shorebirds, experimental treatments will be completed and farms will return to production. Plans have been developed to determine what crops and the timing of planting that might best maximize the productivity of the sites following the experimental treatments. Soil fertility and microbiology, and weed abundance will continue to be monitored through the 2010 growing season.

The economic feasibility analysis of habitat rotations will be completed in June 2009. This research will include enterprise budgets for three rotations, namely, flooding, a typical sod cover crop, and potatoes. In addition, this research will evaluate the net benefits of land conservation tools and a system of payments for ecological services that could support habitat rotation efforts.

Timeline:

- Spring 2009 monitoring of shorebirds, vegetation, soils, and invertebrates will begin April 20, 2009
- A thorough analysis of the pilot data will begin after the final sampling period is completed in May
- Fields will be returned to production in May 2009
- Potato pathology greenhouse and field experiments will be ongoing through December 2011
- New wetland rotation sites will be implemented in 2009 with farmers contracting with NRCS through the WHIP project

Figure 3 Above Left Picture: Researchers measure the growth of cattails in flooded agricultural fields. Above Right Picture: Yellowlegs and dowitchers are the most common shorebirds on the flooded agricultural fields during fall migration.

Figure 4 Increases in Nitrogen observed in the soils at the flooded sites may be a result of the extensive cattails (a nitrogen fixing plant). It is anticipated the cattail biomass and algae blooms will provide substantial amounts of nutrients and organic matter to the soil once the wetland site is reclaimed and returned to production.

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