Land Use

South Saskatchewan Regional Plan Strategy 1.6 Reporting

1.6 Encourage the use of voluntary market-based instruments for ecosystem services in order to recognize and reward the continued stewardship and conservation of private agricultural land and to potentially diversify the agricultural economy.

Alberta Agriculture and Forestry (AF) supports Strategy 1.6 in the South Saskatchewan Regional Plan by providing financial, professional and technical support to multi-stakeholder research projects to develop voluntary market based instruments for ecosystem services. Following are a few projects supported by AF that directly or indirectly contribute to ecosystem services in Alberta.

Ecosystem Services Assessment for Environmental Innovation in Alberta (2012-2015)

This project was led by Alberta Biodiversity Monitoring Institute and funded by AF in partnership with Alberta Innovates. The objectives of this project were to integrate existing ecosystem service information, create new ecosystem service knowledge to fill priority gaps, map ecosystem service supply and demand, and to develop three innovative ecosystem service applications for the livestock sector. The project developed models for six ecosystem services including biodiversity, rangeland health and productivity, water quality and purification, carbon sequestration of rangeland, timber production and forest carbon sequestration, and pollination by wild pollinators. Each model operates at the scale of one of Alberta's seven major watersheds corresponding to seven Land-use Framework regions.

Soil Quality as a Fundamental Contributor to Ecosystem Health: Developing a Quantitative, Rapid Method for Accurate Diagnosis (2014-2016)

The long term objective of this project was to derive deployable, effective tools for examining and identifying the quality, function, and productivity of soils under various farming systems. This project was led by the University of Alberta and funded by AF. This project demonstrated that Beneficial Management Practices (BMPs) such as complex rotations including perennial grasses and legumes that improved soil quality also resulted in higher crop productivity.

Development of Information and Science to Support the Provision of Ecosystem Services on Agricultural Lands (2015-2019)

The objective of this project is to develop and test integrated science and decision support tools to support the design and evaluation of ecosystem services programs. The programs include biodiversity, water quality and quantity, carbon, and wetlands. This is a collaborative research project funded by Alberta Innovates and AF. This project is working towards building a model which highlights the impacts of adoption of BMPs within a sub-watershed as well as identifying the costs related to adoption. Identifying both the ecological and economic impacts and costs will ensure we are working towards an approach that is likely to succeed and support ecological outcomes in a market-based way with private landowners. Click here to learn more about this project.

Nutrient Beneficial Management Practices Evaluation (2006-2019)

AF has been leading the Nutrient Beneficial Management Practices Evaluation project that includes a number of field studies, modelling studies, and watershed assessments including Indianfarm Creek Watershed in the South Saskatchewan Region. This was launched as a six-year (2006–2012) project with objectives to evaluate the environmental effectiveness of BMPs at the field and watershed scales with a focus on water quality, and to conduct an assessment of the economic implications. The project used the Comprehensive Economic and Environmental Optimization Tool (CEEOT) as a model. With successful completion of a number of studies, the project has been extended until 2019. The CEEOT model has integrated more components that are currently being tested. Additional BMPs, e.g. Stream Fencing and Rotational Grazing, are being updated and tested in the integrated CEEOT model. Additional information on the studies carried out under this project can be found here.