Landscape Ecological Assessment and Planning

The Landscape Ecological Assessment and Planning (LEAP) tool establishes a baseline of land use in the southern Lower Athabasca Region of Alberta. This geospatial database/modelling tool will improve reclamation planning in the region, which is home to the majority of oil sands in situ (in place) operations.

LEAP uses a combination of geospatial data and forest industry modelling techniques to create a multi-layered digital map that can be read in various combinations or altogether, similar to Google Earth. Due to its modelling ability, LEAP allows industry to see how reclamation work undertaken today will affect reforestation and caribou habitat five, 10, 20 and even 50 years into the future.

If LEAP indicates that a disturbed area will benefit from additional revegetation efforts, decisions will be made now about planting those areas with trees, shrubs and other native vegetation. These plantings are then added into the LEAP program to provide a future view of reclamation results.

In 2012, LEAP was used by the project’s founding organization, the Oil Sands Leadership Initiative, which included ConocoPhillips Canada, Nexen Inc., Shell Canada, Statoil Canada, Suncor Energy Inc. and Total E&P Canada to plan habitat restoration work in the Algar Region that is aimed at reducing the impact of historical industrial disturbances on woodland caribou habitat. Modelling was used to determine the most effective areas to plant shrub and tree species combinations to achieve the best results for long-term caribou habitat.

The Algar study area, which is slightly larger than Belgium, runs along the east side of the Athabasca River, between Cold Lake and Fort McMurray. The study area, which covers 324 townships and includes some 32,455 square kilometres (km²), contains the East Side Athabasca River (ESAR) woodland caribou range and its seven herds.

Although the amount of oil and gas disturbance is a relatively small percentage of the total area, the degree of impact is higher due to the linear nature of the disturbance. Linear disturbances cause forest fragmentation that affects the habitat of large mammals such as woodland caribou.

LEAP will be used to prioritize and measure reclamation efforts throughout the southern Lower Athabasca Region that will reduce forest fragmentation and re-establish woodland caribou habitat.