

City of Longmont Ecosystem Management Funded Research Program

Topics of Interest

Wildfire

Evaluation of fuels treatment effectiveness at Button Rock Preserve

How can the City better mitigate any negative impacts from conducting fuel treatments?

Climate Change

Evaluate the carbon storage of different vegetation communities (e.g. riparian forests, native prairie, hay fields, wetlands, etc.)

Water

Evaluate public understanding, use, and effectiveness of new signage and microfilament collection stations, and test alternative strategies to promote clean and safe fishing practices.

Evaluate innovative water conservation techniques

Creative ways to keep more water in our (and west slope) creeks without impacting rights and deliveries

Evaluating harmful algal blooms along the front range, their causes, and ways to mitigate them

Evaluate the ecological effects of the Resilient St. Vrain Project

Monitor water quality impacts at Button Rock Preserve in relation to visitor use

Wildlife

Sustainable dryland agriculture for habitat, exploring tenant practices such as perennial windrows, cover crops, and habitat-friendly field margins.

Evaluating efficacy of Habitat Conservation Areas and Seasonal Wildlife Closures in limiting recreation impacts on sensitive wildfire habitat at Button Rock Preserve

Mapping bark beetle and other tree pests in City of Longmont's watershed

Assessing fishery health at Ralph Price Reservoir and the N. St. Vrain Creek and identifying opportunities for improving fishery productivity and sustainability

Inventory of northern leopard frog and bullfrog habitat on City properties

Evaluate the use of installed bee logs designed for cavity nesting bees

Inventory of white-tailed deer on St. Vrain Creek, habitat use, and impacts

Evaluation of wildlife use of dead wood along the pre-2013 flood channel of the St. Vrain Creek

Inventory and evaluate habitat characteristics of different native fish species in Longmont streams

Evaluate the success of prairie dog relocations

How do beaver dams affect native fish species?

How does sound pollution affect wildlife use of riparian corridors?

Comparison of pollinator utilization, or a larger comparative invertebrate survey, between native grasslands with and without the presence of prairie dogs.

Inventory of pollinator diversity in recently thinned forested parks

Modeling bat habitat on City of Longmont Properties

Vegetation

Ethnobotanical surveys and traditional ecological knowledge integration documenting culturally important plants, historic low-water practices, and evaluating how Indigenous-informed land management and seed selection can guide restoration and agriculture.

Identifying sensitive plant and wildlife populations at Button Rock Preserve and identifying opportunities to improve efficacy of Habitat Conservation Areas and Seasonal Wildlife Closures

Mapping invasive species populations at Button Rock Preserve and identifying treatment strategies

Monitoring vegetation recovery of slash piles post-fire at Button Rock Preserve

Evaluation of herbicide treatments for the control of Russian thistle among native grasses and forbs

Evaluation of seeded native species establishment as part of the Resilient St. Vrain Project

Evaluation of stream conditions (i.e. flow velocity, flow depth, channel width, etc.) where cattails grow or don't grow

Differences in germination rates of native species requiring long cold stratification periods and/or from different elevational gradients and implications for long term viability in the face of climate change.

Analyze changes in native and non-native tree establishment and distribution relative to stream channel morphology; utilizing aerial imagery, LiDAR, and tree dendrochronology.

Seed bank dynamics and species composition study for areas disturbed by cheatgrass and/or feral rye.

Seed bank dynamics study for former and active prairie dog colonies.

Improving airborne (i.e., drone) identification of invasive exotic plant distribution

Comparative establishment success of fall vs. spring drill-seeded native grasses on dryland restoration sites.

Rapid vegetation recovery following prairie dog removal and re-seeding efforts.

Soil amendment trials (compost, biochar, mycorrhizal inoculant) to improve native establishment on compacted or saline soils.

Tracking vegetation succession during the first two years following hydromulch vs. straw-crimp seeding methods.

Influence of native shrub transplants (e.g., rabbitbrush, leadplant) versus artificial nurse structures on local microhabitat and herbaceous diversity.

Comparison of germination and establishment rates of local versus commercial ecotypes of key restoration forbs.

Quantifying seed rain from adjacent native and invaded reference areas.

Evaluating use of native early-seral “weedy” species as Year 1 seedlings followed by more diverse, late-seral species as Year 2 seedlings.

Visitor Use

Evaluate the amount and type of use of the City’s trail system

Evaluate the ecological impacts of visitor use