

Prescribed Burning - Just What the (Range) Doctor Ordered

MEEWASIN

Meewasin is a conservation agency dedicated to conserving the cultural and natural resources of the South Saskatchewan River valley. Meewasin's mandate is to ensure a healthy and vibrant river valley, with a balance between human use and conservation by:

- Providing leadership in the management of its resources;
- Promoting understanding, conservation and beneficial use of the Valley; and
- Undertaking programs and projects in river valley development and conservation, for the benefit of present and future generations.



After early spring prescribed burn event



One month later after prescribed burn

What is Prescribed Burning?

Prescribed burning is a resource management tool that applies the prescriptive use of fire to meet specific management objectives. Prescribed burns are planned burns that are designed to reduce risk by setting parameters for the burn (including location, site preparation, weather conditions, ignition patterns and control techniques, and smoke management) with a prescribed set of objectives. Prescribed burns are conducted in pre-selected locations called burn units and can be utilized across varying landscapes including native grasslands, forests and cropland. Other types of fires include wildfire (natural or accidental),



Fall 2016 prescribed burn at Beaver Creek Conservation Area



Meewasin Northeast Swale stormpond restoration (2017)

convenience (minimal planning or control), and controlled burns (time, place and control planned but no management objectives established).

Prescribed Burning as a Management Tool

Native grasslands are the world's most endangered ecosystem (Kraus, 2016). Meewasin identified fire suppression as one of the greatest threats to conservation of native grasslands in the Saskatoon region (Meewasin, 2017) due to the decrease in frequency and intensity of fires and a fragmented landscape (Meewasin, 2013). Native grasslands evolved with fire events occurring at various spatial and temporal scales: from small areas to large regional burns, during every season of the year, and with fire return intervals from a few years to several decades (Romo, 2007). Historically, fires were caused by natural phenomena (e.g. lightning), accidents or set by Indigenous Peoples. The impact of an altered natural fire regime has resulted in the encroachment of shrubs and trees, an increase in invasive plant species reduced habitat structure and function for wildlife and grassland bird species, reduced viability of fire dependent native plants, diminished nutrient recycling; and a buildup of fuel, resulting in an increased risk of catastrophic wildfire (Meewasin, 2017).



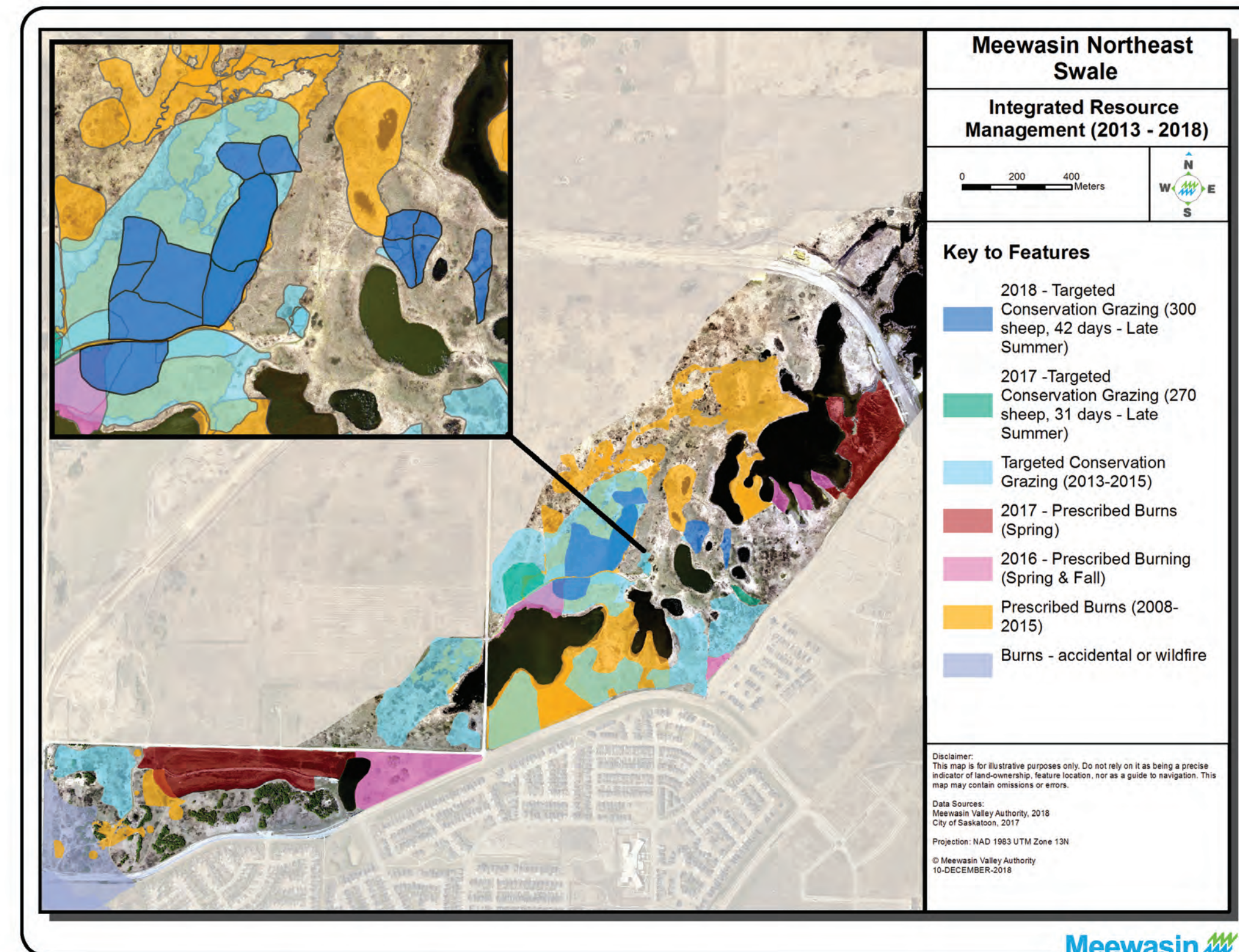
Leafy Spurge (*Euphorbia esula*) at the Meewasin Northeast Swale - prescribed burn

How does Meewasin conduct Prescribed Burns?

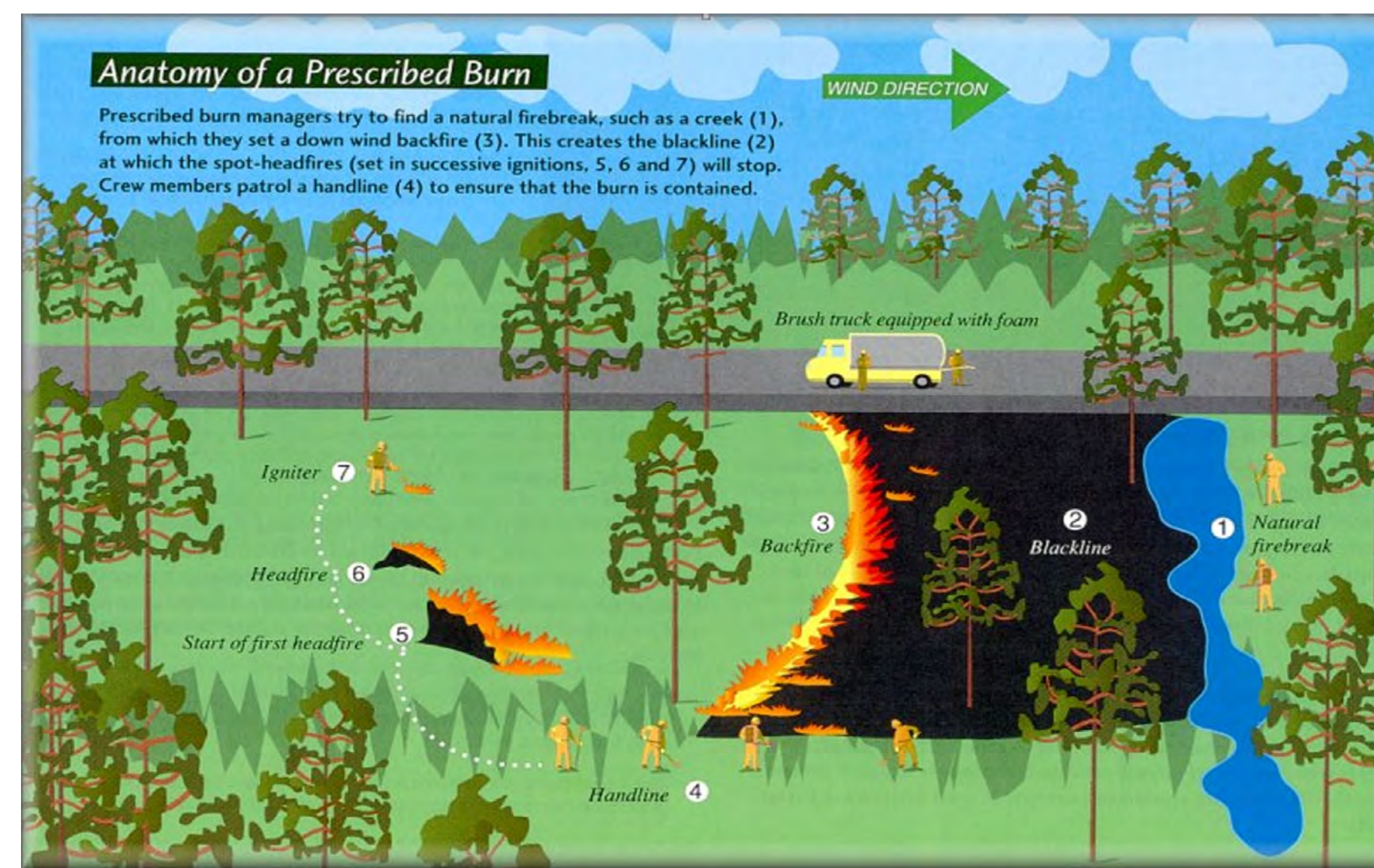
Prescribed burns are implemented when specific prescription conditions are favourable within a burn unit and therefore reducing the various risks associated with fire. Meewasin's burn prescriptions include specific weather condition ranges (air temperature between 0-20°C, relative humidity between 20-60%, wind speed between 5-20 km/hr) and the wind direction blowing smoke away from buildings, roads, and sensitive areas to safely conduct the burn. Meewasin conducts prescribed burns, along with targeted conservation grazing and other management tools, to create a mosaic of disturbances within the Meewasin Valley and within conservation areas. This mosaic of disturbance patches is created by varying the timing, intensity and size of burns to create a heterogeneous fabric across the landscape.



Wildlife monitoring camera captures prescribed burn at Meewasin Northeast Swale



Map of interaction between natural disturbances, prescribed burning and targeted conservation grazing, over the last ~10 years at the Meewasin Northeast Swale



Anatomy of a Prescribed Burn (Florida Forest Service)

There are five different fire ignition types: 1) headfire – burn with the wind, 2) backfire – burn against the wind, 3) flankfire – burn across the wind, 4) ringfire – burn a perimeter ring causing the fire to burn into itself, and 5) center ignition – small close fires cause rapid, intense burning. Various fire ignition types can be used within the same burn unit to achieve different results.

Targets and Objectives of Prescribed Burning



Renny Grizl, Resource Management Officer, explains how to tell if conditions are safe to proceed with prescribed burn

Prescribed burning is used to achieve a range of resource management objectives including reduced dead and decaying plant materials (litter), invigoration of native species, decrease in invasive species cover, shift plant community composition, decrease shrub and trees cover, control disease and insect infestations, and reduce fuel load and fire hazard risk. Prescribed burns help to control non-native and shrubby encroachment into native grasslands which help to enhance grassland bird habitat by creating heterogeneity of plant species composition and height distribution. Each prescribed burn that Meewasin conducts has a set of management objectives that are part of the developed burn plan.



Patchy burn in Kentucky Bluegrass (*Poa pratensis*) invaded area

Public Perception

Prescribed burning can be conducted safely with proper planning, training, permits, site preparation, partnerships and communication. Societal concerns regarding fire has resulted in fire suppression that has led to a build up of fuel loads and habitat degradation. This build up of litter and dead and decaying materials, coupled with the impacts of climate change and shifts in native grassland communities to invasive non-native species can result in catastrophic fires events. Awareness of prescribed burning as a native grassland management tool provides an opportunity to engage the public about the decline of native grasslands and the role fire plays in the ecosystem. Through awareness, public understanding of the important role prescribed burning can play in reducing risk to communities through fuel load reduction and renewing the landscape through smaller, controlled and more frequent fire events.



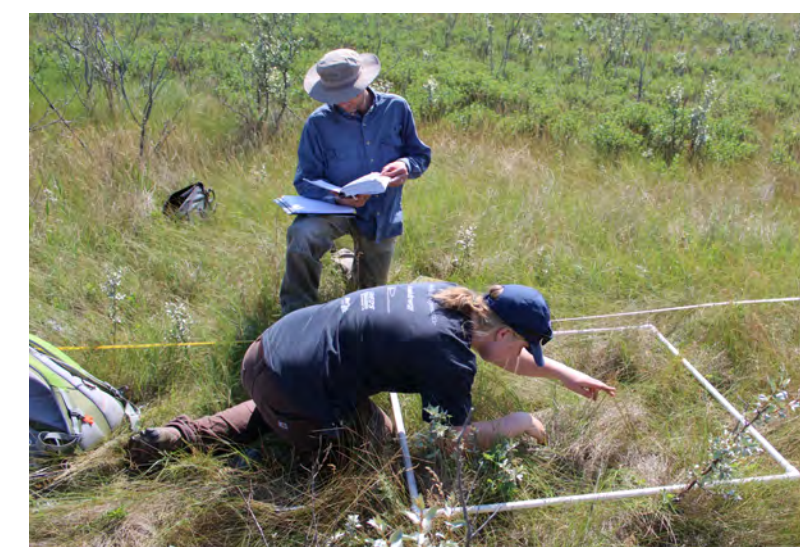
Mower used to cut fire guards in rough areas



Suppression of the natural fire cycle increases fuel loads, resulting in high fire risk for neighbouring communities

Prescribed Burning in the Meewasin Valley

Meewasin has several conservation areas within its 6,700 hectare jurisdiction along the South Saskatchewan River valley. Prescribed burns have been conducted on a number of these conservation areas including Beaver Creek Conservation Area, Cranberry Flats Conservation Area and the Meewasin Northeast Swale for over 25 years. Meewasin has partnered with the University of Saskatchewan, the City of Saskatoon, and other non-government organizations and government agencies to conduct prescribed burns on both Meewasin sites and partner agency sites including the University of Saskatchewan's Kernan Prairie and Environment and Climate Change Canada's St. Denis National Wildlife Area. Meewasin's core funding is provided by its participating parties; the City of Saskatoon, Government of Saskatchewan, and University of Saskatchewan with additional funding from private and corporate donors and government programs. Funding for Meewasin's prescribed burning program is sponsored by Environment and Climate Change Canada's Habitat Stewardship Program.



Range health assessments help Meewasin determine priority areas for prescribed burning

References

- Florida Forest Service. (n.d.). Anatomy of a prescribed burn. In Florida Department of Agriculture and Consumer Services. Retrieved January 24, 2018
- Kraus, D. (2016, October 24). NCC: Saving the world's most endangered ecosystem. Retrieved January 24, 2018, from Land lines: The Nature Conservancy of Canada blog, http://www.natureconservancy.ca/en/blog/archive/grasslands-the-most.html#_Wmj3GfnnGUK
- Meewasin Valley Authority. 2013. Northeast swale resource management plan [Electronic version].
- Meewasin Valley Authority. March 2017. Meewasin valley-wide resource management plan [Electronic version].
- Romo, J.T. (2007). Beneficial management practices for conservation grazing to enhance biological diversity on native prairie. Saskatoon, SK: University of Saskatchewan.

