MULTISAR
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MULTISAR — 20 Year Anniversary

In 2002, while driving home from Hinton, Alberta, a discussion started between two biologists about the new multispecies project in Alberta involving landowners, multiple agencies, and species at risk. The conversation went back and forth throughout the drive about what this project should be named before settling on "MULTISAR". Reasons for the name had many implications as it was meant to stand for **MULTI**ple **S**pecies **A**t **R**isk but also as **MULTI**ple **S**pecies-**A**gencies-**R**esources.

This project started as a collaboration between Alberta Environment and Parks (Fish and Wildlife and Public Lands) and Alberta Conservation Association 20 years ago with long-term funding support from Environment Canada. Over the course of 20 years our network has branched out and we are now fortunate to have many ranching families (80+), the Prairie Conservation Forum, Cows and Fish, Alberta Beef Producers, Canadian Cattlemen's Association, and the Canadian Round table for Sustainable Beef as collaborators, partners, or advisory members on this project. Throughout this time, we were also fortunate to have continued funding support from Environment and Climate Change Canada, Alberta Environment and Protected Areas, Alberta Conservation Association, and established new in-kind support from industry partners (Altalink, EQUS, HUVAN Construction, etc).

Throughout the initial years, a lot of miles were put on networking and talking around kitchen tables over coffee on what the project was all about. These conversations were key to building mutual trust and respect within a ranching community that was feeling overwhelmed by a new Species at Risk Act and implications of what the Act might mean to their operations. The first ranch to sign on to the MULTISAR project was the Ross Ranch, whose family was well known in the Milk River area and who at one time managed most of the land in SE Alberta. The Ross family was willing to work with us as we developed the project further into what landowners can expect today: a project that meets landowner's needs, uses local knowledge, and provides a grassroots approach to species at risk conservation. The landowner is, and always will be, an integral part of the MULTISAR team and not only brings ideas to the table about possible habitat enhancements on their land, but also has the final say on which habitat enhancements they would like to implement. Through largely word of mouth, the successes of the Ross Ranch/MULTISAR partnership led to neighbours of the Ross Ranch signing up with MULTISAR, and the project has been expanding ever since. In 2015, a large boost of support from the cattle industry through funding from Environment Canada allowed us to expand outside the Milk River Watershed into the much larger South Saskatchewan Watershed.

The Ross Ranch was the first ranch to collaborate with MULTISAR.

Thanks to the growing support of the ranching community and the long-term relationships with those we have and continue to work with we now collaborated with ranchers on detailed assessments for 80 properties totaling 650,000 acres with many of these properties participating in reassessments to track changes over time. Interest continues to grow as we have just over 100,000 acres of new land signed up for 2023 and are starting a list of interested properties for 2024. I look forward to the next ten years and the new relationships and learnings that we will have.

Brad Downey - Alberta Conservation Association – MULTISAR Project Lead

Highlights of MULTISAR Project's Achievements: 2002-2022

80 Landowners are collaborating with us on detailed Habitat Conservation Strategies or Habitat Management Plans for 650,000 acres

105 Landowners have worked with us on Species At Risk Conservation Plans and Beneficial Management Practices for 214,446 acres

Over 300 landowner driven habitat enhancement projects have been implemented

- 12 Native Reseeding Projects (1,920 acres of previously marginal cropland to increase grazing opportunities for ranchers and habitat for species at risk)
- 43 Artificial Structures (bat condos and ferruginous hawk poles)
- 42 Wildlife Friendly Fencing projects (100s of km)
- 49 Portable Watering Sites
- 51 Upland Watering sites
- 29 Tree Protections
- 29 Shrub and Grass Plug Plantings
- 20 Weed Control Projects
- 20 Grazing Management Tools (portable fencers, portable windbreaks, portable calf shelters, etc.)
- 12 Riparian Protection Projects
- 11 Anthropogenic Feature Mitigation (old fence removal, junk pile removal, etc.)


Native grass reseed
Brad Downey


Hawk pole
Alberta Conservation Association


Upland watering site
Mike Verhage


Bat condo
Mike Verhage

Connecting the Dots between Grassland Birds, Insects and Vegetation – The Silver Sage Research Project

The Silver Sage Conservation Site is a 2,400-acre property in southeast Alberta, owned by Alberta Conservation Association with the support of several other organizations. Since its purchase in 2010, over half of the site (1,300 acres) has been converted from marginal cropland back to native grassland. Since the beginning, MULTISAR biologists have been busy monitoring wildlife and range health on the property each year to see how species abundance and diversity changes as the reseeded native grass establishes. Wildlife monitoring consists of five-minute point counts where the number of individuals of all species are recorded within 100 m of the observer in the same manner wildlife is recorded during MULTISAR's Habitat Conservation Strategy process. The only difference is that these point counts occur at the exact same location every year instead of being reassessed every 5-6 years when enrolled in the MULTISAR program. Some notable species that have been recorded so far include chestnut-collared and thick-billed longspurs, Baird's and grasshopper sparrows, and Sprague's pipit.

In 2019, insect and vegetation sampling were added to the list of monitoring activities. Insect collection and identification was carried out in partnership with Dr. Dan Johnson from the University of Lethbridge. This allows us to also understand how the insect community changes during the different stages of the reseed process, as well as make comparisons to surrounding areas of native prairie. Our goal is to determine whether insect composition, vegetation structure, or a bit a of both, plays a larger role influencing where grassland birds ultimately decide to establish nesting territories. Insects (e.g., grasshoppers, beetles, caterpillars, etc.) and other invertebrates (e.g., spiders) are a primary food source for the nestlings of most grassland songbird species. Insects also contribute to important ecosystem services, such as pollination, pest control, decomposition, and nutrient cycling. Vegetation structure is an important component of habitat that influences nesting, prey accessibility, and the ability for birds to hide from predators. It includes measures such as the percentage of ground cover types (e.g., grass, forb, shrub, moss, lichen, and bare soil), litter mass (unattached dead vegetation), and visual obstruction (i.e., how thick the vegetation is and how well it could hide a bird or nest).

Our bird, insect, and vegetation monitoring has been completed at point counts in various stages of reseeded native grassland based on when it was first reseeded and within pre-existing native prairie and tame grassland throughout the property. At least two point counts were placed in each stage of revegetation and pasture resulting in a total of forty sampling locations. Insects were collected every two weeks throughout the spring and summer (May to August). We used pitfall traps to sample the ground-dwelling invertebrate community (e.g., beetles, caterpillars, ants, spiders, etc.), which look like small flowerpots with specialized lids that prevent larger animals, like frogs and mice, from getting inside. These traps are dug into the ground so that the rim at the top is even with the ground. As insects are crawling along, they reach the trap and fall into the bottom which is full of antifreeze. Insects are collected from the traps every two weeks. Grasshopper composition, age, and density data were also collected during sweep-net surveys conducted once a month. After processing the 2021 insect samples, we have identified 41 different invertebrate families. During a preliminary look at the results, we also found a higher invertebrate abundance on most recent reseeds than we originally expected and what appears to be an entirely different insect community using these areas in comparison to surrounding native prairie or more established reseeds. Stay tuned for more detailed results from this project which will be released in upcoming years.

An insect pitfall trap on the Silver Sage Conservation Site.

Turnbull's thistle grasshopper.

Sand Dune Habitat in Southern Alberta

Alberta isn't likely the first place one thinks of when they hear the term "sand dunes", but you don't have to travel to some far off desert to find them. From the Athabasca Sand Dunes in the north, to the Pakowki Sandhills in the south, sand dunes can be found all over Alberta. They might not look like much, but sand dune habitat is incredibly unique and diverse, and is home to some of the rarest plant and animal species in the province.

Sand dunes or "sand hills" are shaped by wind erosion.

Sand dunes or "sand hills" occur when sandy soils are blown and shaped into mounds or ridges by the wind. Historically, this process was aided by natural disturbances such as fire and large herds of grazing bison. They were effective in preventing vegetation from establishing in these sandy areas, allowing the natural process of wind erosion to create and shape dunes.

Although sand dunes and sand plains can be found all over Alberta, they are becoming increasingly rare. Dune habitat in the Middle Sand Dunes, north of Medicine Hat, for example, is estimated to be disappearing at the rate of 40% per decade. The primary reason for this is their reliance on disturbance to persist. However, with fire suppression and the disappearance of the large herds of bison from the plains, these natural disturbances have largely been suppressed. As a result, vegetation has been encroaching onto active dunes, stabilizing them. Ironically, this stabilization of active dunes by vegetation is often viewed as a sound land management practice, when it is actually detrimental to the dune ecosystem.

The Ord's kangaroo rat requires active sand dune habitat.

Like sand dune habitats themselves, many of the plant and animal species that inhabit these areas are unique and often rare. One of the best known dune inhabitants in Alberta is the Ord's Kangaroo Rat. This species, which in Canada is only known to occur in Alberta's Middle Sand Hills and the adjacent Great Sand Hills in Saskatchewan, is Endangered in the province. Small-flowered sand verbena is another rare sand dune inhabitant. Only found at eight locations in southeastern Alberta, small-flowered sand verbena is listed as Threatened in the province. The same is true for western spiderwort, a plant so rare in Alberta that it is currently only found at one site in the southeastern corner of the province. All of these species rely on sparsely vegetated sand dune habitat with some element of active drifting.

Typical dune habitat in the Pakowki Sandhills.

The Pakowki Sandhills

This past summer, MULTISAR staff had the privilege of working in one of southern Alberta's most unique habitats: the Pakowki Sandhills. As the name implies, the Pakowki Sandhills can be found in the Pakowki Lake area of southeastern Alberta. Here, the landscape is gently rolling with dunes up to seven metres deep. MULTISAR's work in the

Western spiderwort only occurs at one site in southeastern Alberta.

Pakowki Sandhills included both wildlife and range surveys, during which staff observed an incredible diversity of plants and wildlife. Sand dropseed and sand grass were typical throughout the dunes, along with forbs such as scurf pea and wild licorice. Shrubs, including willow and choke cherry were also common, as were plains cottonwoods on the neighbouring sand plains. Staff were fortunate enough to observe western spiderwort, with its distinctive purple flowers in bloom in June and July (see Species Profile on Western Spiderwort on final page of newsletter). Many of the wildlife species observed in the dune areas included those that are at risk in Alberta. Grasshopper and Baird's sparrows could be heard singing from grassy areas, while loggerhead shrikes, eastern kingbirds, and least flycatchers were recorded amongst the shrub communities. In tall shrubs and cottonwoods, raptor nests were found, including that of the Endangered ferruginous hawk.

Beneficial Management Practices (BMPs)

The single biggest threat to sand dune habitat in Alberta is the encroachment of vegetation. In the absence of fire and grazing bison, cattle help increase disturbance on dune habitat and help prevent the encroachment of vegetation. If you have dune habitat on your land, it's not recommended to exclude grazing. Light to moderate grazing has a limited impact to sand dunes and the species that inhabit them and may help prevent vegetation encroachment and the resulting sand dune stabilization. In fact, dune dependent species, like the Ord's kangaroo rat, respond positively to livestock grazing as it helps to prevent vegetation from stabilizing sandy habitats and increases the amount of bare ground required by kangaroo rats. One study showed that the population of kangaroo rats was higher in grazed areas than in ungrazed areas. Therefore a moderate amount of well-managed grazing may be beneficial for dune ecosystems.

References

Alberta Sustainable Resource Development. 2003. Status of the Small-flowered Sand Verbena (*Tripterocalyx micranthus*) in Alberta. Alberta Sustainable Resource Development, Fish and Wildlife Division, and Alberta Conservation Association, Wildlife Status Report No. 48. Edmonton, Alberta. 24pp.

Coenen, V., and J. Bentz. 2003. Plant community classification of the Pakowki sandhills and sand plains. Resource Data Branch, Alberta Sustainable Resource Development. Edmonton, AB. 76pp.

Kissner, K.J. 2009. Beneficial Management Practises for Ord's Kangaroo Rat in Alberta. Alberta Sustainable Resource Development, Fish and Wildlife Division, Alberta Species at Risk Report No. 125. Edmonton, Alberta. 42pp.

SPECIES PROFILE: WESTERN SPIDERWORT

Description: One of several species at risk found in southern Alberta's grassland sand-dune complexes, the western spiderwort *(Tradescantia occidentalis)* is a perennial herb with a long stem and slender grass-like leaves, growing up to 60 cm high. Its inconspicuous vegetative characteristics make detection of the species particularly challenging when not in bloom. However, come June, its pink to brilliant blue flowers dot the landscape like prairie sapphires. Flowers bloom until late July, during which one to two blossoms will open at a time. Each three-petalled flower lasts just one day, enough time to be visited by sweat (Halictidae) bees and other pollinators. The spiderwort's unique name originates from the sticky, cobweb-like substance secreted from injured leaves and stems.

Status: In Alberta, there is one known population of western spiderwort, first discovered in the Pakowki Lake Sandhills in 1986, west of the hamlet of Manyberries. Its limited distribution and small population size makes the spiderwort one of the rarest plants in the province; MULTISAR personnel documented 89 plants during the 2022 field season, however as few as 7 plants have been documented in the province during periods of severe drought. The plant has been subsequently listed as 'Endangered' under the Alberta *Wildlife Act*. The western spiderwort is critically imperiled throughout its Canadian range, restricted to just four disjunct sand dune habitats. As a result, the species is listed as 'Endangered' in Saskatchewan and Manitoba, as well as 'Threatened' under the federal *Species At Risk Act*. Canadian occurrences of the species are at the northern-most periphery of the spiderwort's range, which extends into the Great Plains of the south-central United States. The species is believed to be 'Secure' In the United States, though the number of plants is not known.

Habitat: Western spiderwort in Alberta are restricted to the Dry Mixedgrass Natural Subregion, the warmest and driest subregion in the province. There they are found on partly-stabilized but active sand dunes, in areas of little vegetation cover and with drifting sand.

Western spiderwort habitat.

Threats: Major threats to the species include the stabilization of dune habitat (i.e. plant succession), as well as the historical and current loss/degradation of suitable habitat due to anthropogenic disturbances. Leafy spurge *(Euphorbia esula),* a *Noxious* weed in Alberta, is known to quickly overtake dune systems, and has been documented at three of five sites in Canada.

Beneficial Management Practices:

Management strategies that stave off the revegetating/stabilization of sand dune habitats are beneficial for the species. Such Beneficial Management Practices (BMPs) may include:

- Retention of existing patches of native prairie
- A controlled and light grazing regime to prevent plant encroachment
- Invasive species control of leafy spurge, baby's breath, and crested wheat grass
- Promoting of pollinator species
- Where safe and permitted, the use of prescribed fire can be a powerful tool in the reversal of dune stabilization.

References:

Alberta Environment and Sustainable Resource Development. 2013. Alberta Western Spiderwort Recovery Plan 2012-2022. Alberta Environment and Sustainable Resource Development, Alberta Species at Risk Recovery Plan No. 26. Edmonton AB. 23 pp. Available at: https://opn.alberta.ca/dataset/e44adfb7-4d67-424a-a996-1e8d9e76f93/resource/708dc5d3-9e7f-4bad-ba55-04a76f1e6f4a/download/2013-sar-westernspiderwortrecoveryplan-mar2013.pdf

COSEWIC 2002. COSEWIC assessment and update status report on the western spiderwort *Tradescantia occidentalis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa ON. vi + 25 pp. Available at: https://www.sararegistry.gc.ca/virtual_sara/files/cosewic/sr_western_spiderwort_e.pdf

NatureServe. 2022. NatureServe Explorer (database). Available at: https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.139914/Tradescantia_occidentalis

Smith, B. 2000. Status of the Western Spiderwort *(Tradescantia occidentalis)* in Alberta. Alberta Environmental Protection, Fisheries and Wildlife Management Division, and Alberta Conservation Association, Wildlife Status Report No. 31. Edmonton AB. 12 pp. Available at: https://open.alberta.ca/dataset/0a0f72e1-0d50-4747-9018-14337291ee37/resource/c8fad170-ff21-4a5c-8807-4f4ecd9b5508/download/2001-sar-statuswesternspiderwort-jan2001.pdf

Prairie Conservation and Endangered Species Conference

The Prairie Conservation and Endangered Species Conference is happening **February 21-23, 2023** at the Calgary Zoo. Held every three years since 1986, this is the premiere conference for scientists, landowners and land managers, consultants, educators, nature enthusiasts, and others to share information and new approaches to conservation, agriculture, and protection of prairie landscapes and native species. Registration and more information about the conference can be found at: https://www.pcesc.ca/

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PRAIRIE CONSERVATION FORUM

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