POLLINATORS FOREVER

Protecting flowering plants helps everything else on the prairie—from bees and butterflies to pheasants and other ground-nesting birds.

By Andrew McKean

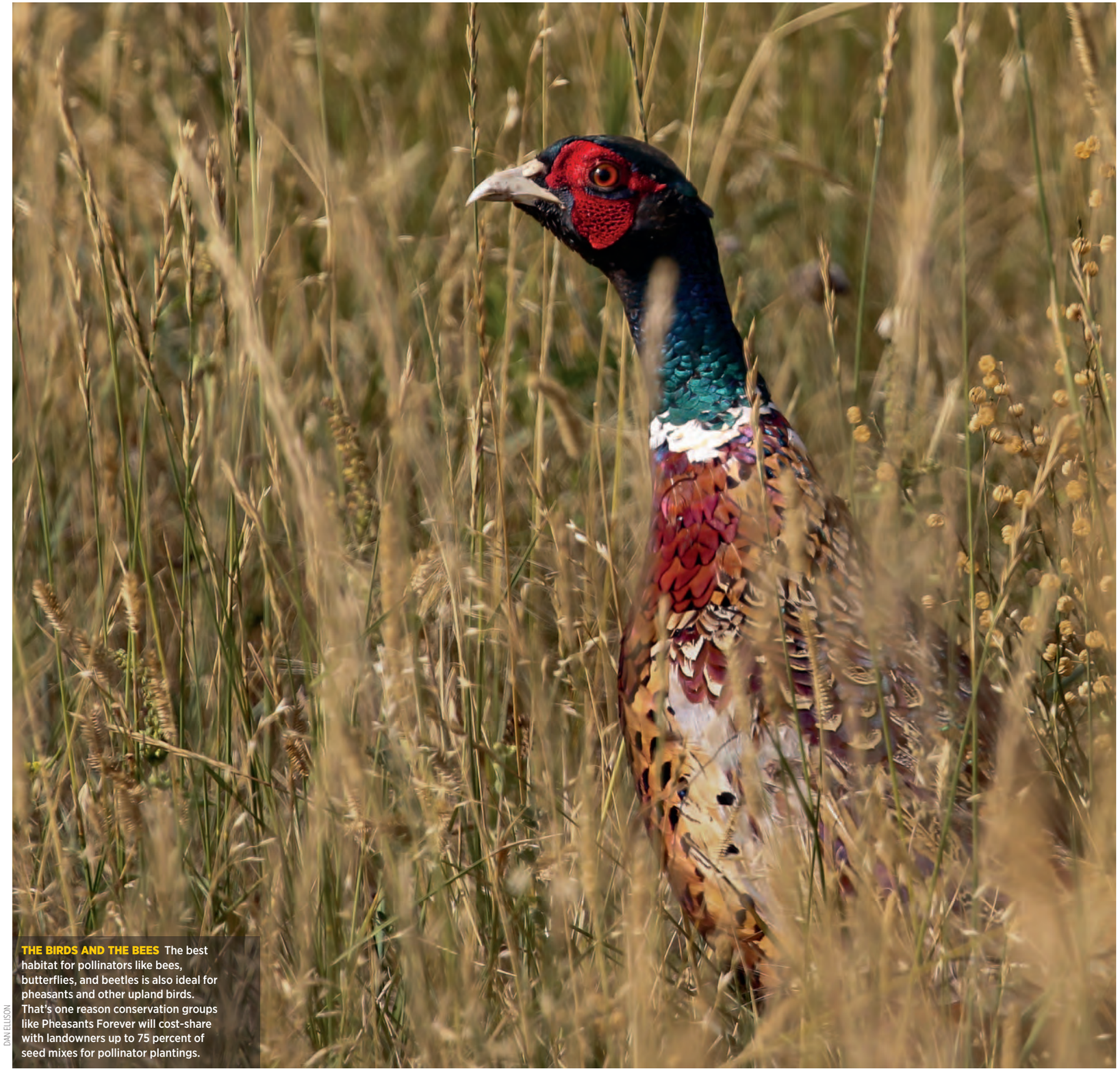
If sandhill cranes are the very song of spring for me, fall is announced by the arrival of two gallons of honey that Jim Rodenberg leaves on my porch. It's a trade for allowing his beehives to occupy an unswathed corner of my alfalfa field.

As much as I enjoy the honey, which tastes like ripe melon and yellow raisins, and which by gloomy February here in northeastern Montana is the equivalent of bottled sunshine, I appreciate the note that accompanies this annual offering even more. In it, Rodenberg and his crew at Northern Bloom Honey, based outside Wolf Point, detail the honey season. Some years, he writes, clover and blue flax contribute mightily to the golden nectar. Other years, it's alfalfa and canola. Drought years are expressed in dark honey that tastes surprisingly like tea.

Over the years, I've squared my own observations with Rodenberg's. In the falls when he reports prodigious honey production, I have my best hunting seasons for pheasants and sharp-tailed grouse. In the dark-honey years, I struggle to find birds.

The connection is pollinator habitat, the overgrown tangle of wildflowers, shrubs, brush, and vines at the edge of a field or fence line that's hard to walk through and always seems to have bumblebees and orb spiders working in the pants-grabbing brambles. If you were to stand in this wild garden on a windless day, you could probably hear the buzz of insects prospecting for pollen.

Unfortunately, numbers of those insects—



THE BIRDS AND THE BEES The best habitat for pollinators like bees, butterflies, and beetles is also ideal for pheasants and other upland birds. That's one reason conservation groups like Pheasants Forever will cost-share with landowners up to 75 percent of seed mixes for pollinator plantings.

DAN ELLISON

including monarch and painted lady butterflies, leafcutter moths, and tiny metallic blue mining bees—are declining. No one is certain why, but one likely reason is because there's less pollinator habitat every year, as we clear and tame these unruly corners of our lawns and cemeteries and crop fields.

It's a dreary fact that a half-dozen native Montana butterflies are classified as state "species of concern," at risk of further declines and even of tumbling into federal threatened or even endangered status, due mainly to threats to the places where they live. The loss of native butterfly, bee, beetle, and moth habitat appears to be driving declines in these pollinators' populations, says Rick Northrup, chief of the Montana Fish, Wildlife & Parks Wildlife Habitat Bureau.

The solution, Northrup adds, is the same as it is for sage-grouse, Sprague's pipits, or other grassland birds that adapted to native landscapes and are now disappearing: "It's critical to keep native landscapes intact. When we have the full complement of forbs and shrubs on our native prairies, flowering starts in April and continues all the way through the fall, so there's a progression of blooms that take care of the insects, which in turn feed birds from chicks up through juveniles and adults."

Beyond habitat loss, other threats to native pollinators include intensive use of wide-spectrum herbicides that kill plants at the heart of the pollinator-plot mosaic, and pesticides that kill many beneficial insects and leave survivors unable to fly or forage as well as before. Domestic honeybees also destabilize ecosystems, outcompete native pollinators, and carry diseases and parasitic mites that infect Montana's native bees that adapted to the state's native flowering plants.

Patches, plots, and prairies

Pollinator habitat can be found across Montana—from serviceberry patches in mountain foothills to floral alpine meadows that hum with buzzing bees. But the plant communities with the most loss and, paradoxically, the most recovery potential are the state's central and eastern prairies.

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CLOCKWISE FROM BOTTOM LEFT: STEVE OEHLENSCHLAGER; DAN ELLISON; LISA BALLARD; SHUTTERSTOCK

BEE DIVERSITY Researchers at Montana State University's Montana Entomology Collection estimate that the state is home to between 750 and 1,000 native bee species, including, clockwise from top left, the leafcutter bee, green metallic sweat bee, cuckoo bee, and mining bee. All bees are important pollinators that sustain upland bird habitats as well as many agricultural crops.

"I don't necessarily think we should be surprised to see this scale of loss of insect diversity when we've lost 60 to 70 percent of our native prairie in some counties," Northrup says. "That's why our department is focused on offering working ranches a variety of options for keeping remaining prairie habitats intact."

Those options include traditional conservation easements, which pay willing landowners to not plow or build on prime prairie, and FWP's new Habitat Conservation Lease Program, which pays landowners to protect high-priority wildlife habitat, including pollinator habitat.

> "Conserving native prairie habitats is by far the most important thing FWP, other agencies, and landowners can do for pollinators."

In the long run, says Ken Plourde, FWP's upland game bird habitat specialist based in northeastern Montana, conserving intact landscapes—with complexity, diversity, and resiliency established over thousands of years—does more for the prairie and its wildlife than paying landowners to plant new pollinator plots on previously plowed acres.

"Conserving native prairie habitats is by far the most important thing FWP, other agencies, and landowners can do for pollinators," says Plourde. "The great thing about conservation tools like long-term leases is that we don't have to explicitly plan or account for every species we want to conserve, whether it's deer or birds or insects. Just by maintaining intact landscapes we can protect everything."

That's not to say that previously plowed fields can't still benefit pollinating insects. Biologists and producers are recognizing that planting a mix of native shrubs and forbs (wildflowers) along edges of crop fields, in uncropped corners of center-pivot irrigation circles, or even in suburban backyards can give local bee and butterfly populations a boost. Several agencies and NGOs, including FWP, Pheasants Forever, and the Natural Resources Conservation Service, cost-share with landowners up to 75 percent of seed mixes for pollinator plantings.

These elegantly unruly plots of milkweed, thistles, cornflowers, flax, and daisies are designed to bloom in succession, the mix of annual and perennial plants providing food and cover for small game and birds even when plants aren't flowering.

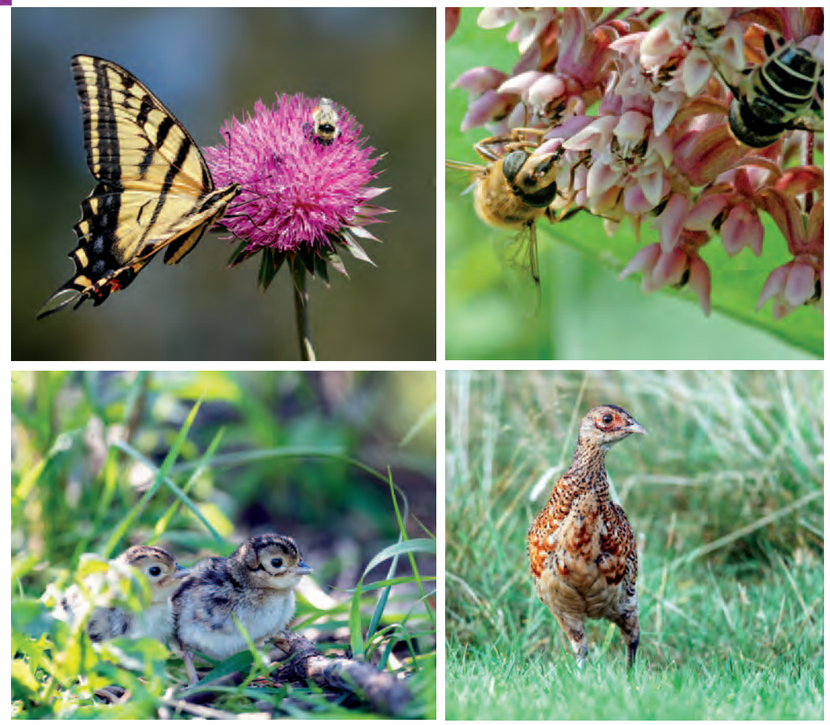
Plant diversity is essential for grassland birds, including pheasants and grouse. The grasslands that support the most flowers and broad-leafed plants are intricate, diverse, and seasonally floral.

> "Upland birds require nesting habitat, brood-rearing habitat, and escape cover, and pollinator habitat is important to all three life-cycle components."

Those adjectives describe healthy pollinator habitat, says Leslie Cooper, a cooperative biologist for Pheasants Forever. "Pollinator habitat is the little black dress of conservation," she says. "It can really go everywhere and it's versatile enough to do anything."

In her habitat restorations, Cooper aims for a steady blooming of native wildflowers, flowering shrubs, and woody plants such as milkweeds and thistles from spring to late summer to meet the seasonal needs of ground-nesting birds. "When we're planting or improving a pollinator plot, we're trying to mimic what historically occurred on the landscape, which is a high diversity of native forbs and wildflowers that bloomed in succession throughout the growing season," Cooper says. "Upland birds require nesting habitat, brood-rearing habitat, and escape cover, and pollinator habitat is important to all three life-cycle components."

Cooper further notes that, unlike many stands of grass-centric Conservation Reserve Program (CRP) seedings clogged with dead plant matter, pollinator plots generally have plenty of bare ground below the blooms. "Young chicks need that open space at ground level when they're the size of ping-pong balls to move and to feed and to escape predators. And it turns out that something like 70 percent of our native bees are solitary ground nesters, so it benefits them, as well," says Cooper. "Later, as those chicks mature, they rely on soft-bodied insects for their protein, and pollinator habitat produces a massive amount of insect biomass. Still later, after they transition to seeds, pollinator habitat continues to work for them because it contains a good diversity of seed-bearing plants."



ALL PHOTOS THIS PAGE: MARIROSE KUHLMAN

BABY BIRD FOOD Native prairie contains hundreds of forb species (flowering plants) that bloom at various times during the spring and summer. This allows butterflies and bees (top) several months of nectar while providing baby sharp-tailed grouse (above left) and young pheasants (above right) a steady diet of aphids, caterpillars, and other insects that thrive in the vegetation.

Sharing the costs

Pollinators also benefit grain and other crop producers in places like Montana's Golden Triangle northwest of Great Falls, the epicenter of the state's wheat production. There, Choteau-based Erin Fairbank—until recently a biologist with Pheasants Forever and the NRCS—pitched pollinator habitat to cereal-grain farmers, recommending that producers plant pollinator mixes in the overlooked borders of section-long wheat fields or the ragged margins of derelict homesteads.

Pollinators don't boost wheat and barley production directly, as they do alfalfa, a flowering plant. But diverse, dense pollinator plantings can trap snow and hold moisture along field edges, improve soil health,

and reduce wind and water erosion, Fairbank says. And pollinator plots attract beneficial insects that kill pest bugs like wheat stem sawflies.

Fairbank notes that many producers also enjoy the aesthetics of wildflower plantings and want to help upland birds and other wildlife but can't afford the pricey pollinator seed mixes, which run $70 to $300 an acre, plus costs to prepare the ground and plant the seed. Several federal Farm Bill programs have incentives for plantings that benefit fast-disappearing bee species and other pollinators. Fairbank negotiated cost-share agreements through local NRCS offices to make it affordable for producers to plant pollinator mixes in field borders and corners, or convert entire crop fields.

The Farm Bill provides these incentives because, without insects moving pollen from one plant to another, the United States could not grow fruits, nuts, or vegetables. Most flowering plant species require insect pollination, including the alfalfa that sustains Montana's beef industry. In all, pollinators contribute more than $20 billion annually to the U.S. economy, and wild pollinators account for half of that contribution, according to recent studies. It's no exaggeration to say that wild bees, butterflies, and moths are the invertebrate backbone of nearly all floral and fruiting plants in Montana.

BETTER FOR ALL Top: Intact native prairie near Geraldine. Above: A bee visits prairie smoke flowers. Right: Strips of native grasses and forbs are planted between crops as a conservation practice that protects soil and water while providing habitat for insect pollinators and birds.

CLOCKWISE FROM TOP: JOHN LAMBING; OMAR DE KOK-MERCADO/IOWA STATE UNIVERSITY; LORNA MASON

Potential federal ESA listing

The recognition that homegrown pollinators may need the sort of help that FWP, landowners, and partner agencies have extended to sage-grouse, bull trout, and other native species experiencing population declines is a fairly new idea. "It isn't clear if FWP even has any legal jurisdiction over insects like pollinators," says Ken McDonald, head of FWP's Wildlife Division. "But we recognize their importance and also the possibility that some could become federally listed." McDonald says that two bumblebee species and a butterfly that occur in Montana are being considered for federal Endangered Species Act listing. "So we are trying to incorporate pollinator habitat needs into our Upland Game Bird Enhancement Program. But at this point, we haven't hired a pollinator biologist or entomologist as some other states and upland conservation groups have."

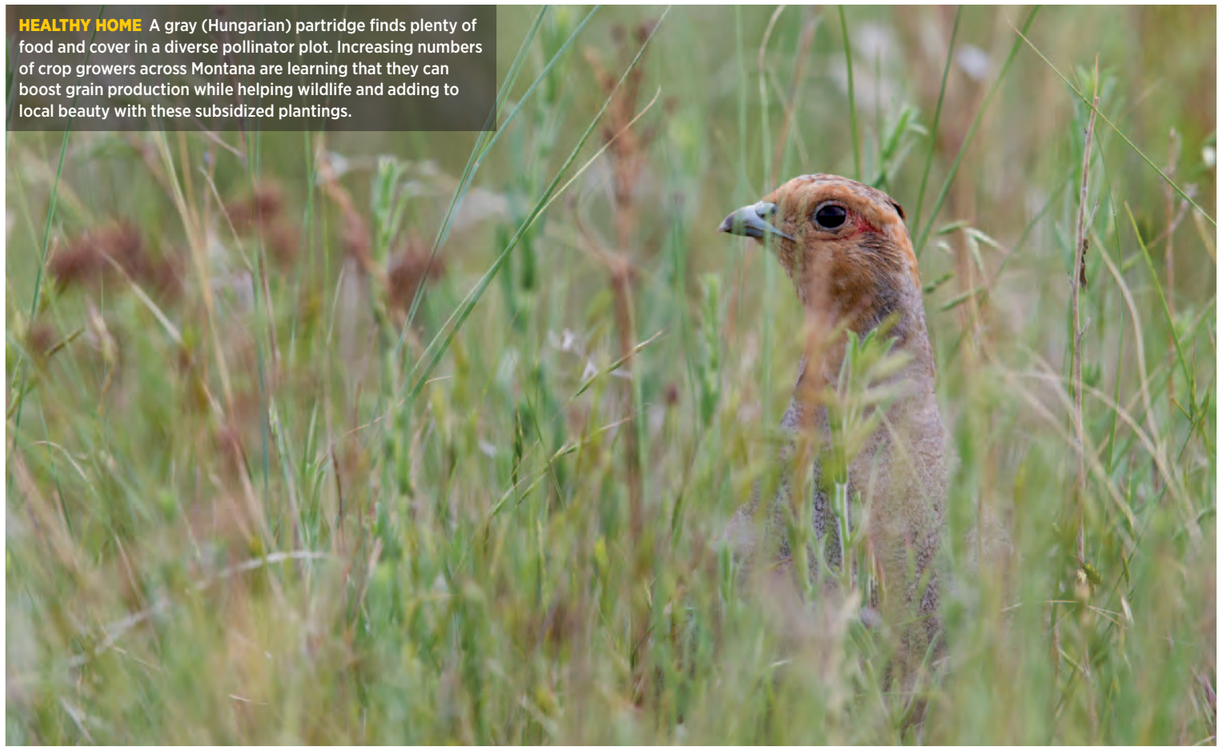
For now, FWP is doing all it can to help protect unplowed native prairie, with the goal of enrolling 500,000 acres in conservation agreements. "Our efforts and those of other agencies and conservation groups to work in partnership with ranchers and other landowners to retain vast native habitats is a direct benefit to all wildlife species—from pronghorn to sharptails to native bumblebees—that have adapted to those landscapes," McDonald says.

POTENTIAL EXTINCTION? Declining numbers of insect pollinators is a nationwide problem. The three Montana pollinators that face potential Endangered Species Act listing are, clockwise from left, the Pawnee montane skipper, western bumblebee, and Suckley's cuckoo bumblebee.

Back on Montana's Hi-Line, beekeeper Jim Rodenberg observes a "happy bee" metric that helps him assess honey production. When his bees don't have to travel far from their hive to collect pollen, and when the landscape is a garden of flowers both cultivated and wild, he has bumper crops of what he calls his "liquid gold." But Rodenberg is also a bird hunter, and he has his best days on wild roosters in the very same fields where his bees thrive.

> If you take care of the bloom, then everything else sort of takes care of itself.

"It's the bloom," says Rodenberg. "The bees are looking for it. The insects like it, and the birds follow because it provides everything they need. If you take care of the bloom, then everything else sort of takes care of itself."



HEALTHY HOME A gray (Hungarian) partridge finds plenty of food and cover in a diverse pollinator plot. Increasing numbers of crop growers across Montana are learning that they can boost grain production while helping wildlife and adding to local beauty with these subsidized plantings.

CLOCKWISE FROM TOP: USFWS; WIKIPEDIA; DONALD M. JONES; CORY SHEFFIELD/ROYAL SASKATCHEWAN MUSEUM