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Mormon Metalmark

A Needle in a Haystack

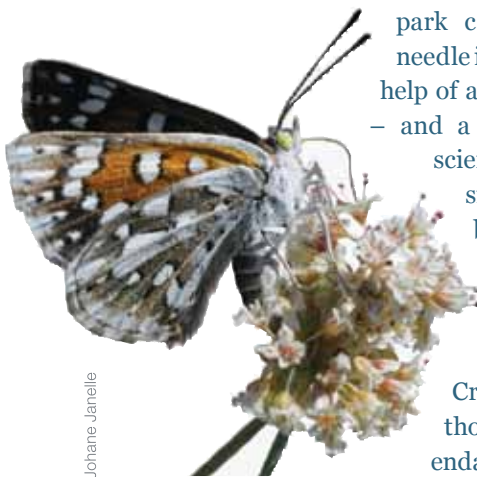
Locating Mormon Metalmark butterfly colonies in Grasslands National Park

Shelley Pruss and Ashley Wick know what it's like to hike for miles under a blazing midday sun along the dusty embankments of the badlands in **Grasslands National Park**. Their job? To locate **Mormon metalmark** butterflies as part of Parks Canada's efforts to help protect and recover this threatened species.

© Shelley Pruss



But finding a rare butterfly in a national park can be like searching for a needle in a haystack. Luckily, with the help of a new computer habitat model – and a passionate group of citizen scientists – the park is identifying significant numbers of new butterfly colonies while also gaining valuable insights into the critical habitat the metalmark needs.



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Critical habitat refers to those places a threatened or endangered species depends on at all stages in their lifecycle. Without a safe and secure supply of quality habitat, no species can survive.

An elusive species

The multi-coloured Mormon metalmark butterfly (*Apodemia mormo*) – named for the white metallic-looking markings on its wings - is not much bigger than a toonie. Individual Mormon metalmark butterflies live for only ten days during the summer. Typically butterflies do not travel outside of their home colony of branched-umbrella (*Eriogonum pauciflorum*) and rubber rabbitbrush (*Ericameria nauseosus*) plants that they depend on for food and shelter.

These host plant colonies occur on the barren hillsides and clay embankments of the hot, dry and dusty badlands. These unique landscapes, created over millions of years by water and wind erosion, are a key feature of Grasslands National Park.

The Park is home to the most northern population of Mormon metalmark butterflies in North America. Metalmarks are more typically found in the western United States, in arid regions of California, Nevada and Utah. Only one other population of Mormon metalmarks is known to exist in Canada, in British Columbia's southern Similkameen River Valley.





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The prairie population of the metalmark is listed as a threatened species under the federal [Species at Risk Act](#). Under the Act, Parks Canada managers are required to both identify and protect critical habitat for both threatened and endangered species.

Only six known colonies of metalmarks had been identified in the park prior to 2007. As a result, Parks Canada launched the Mormon metalmark project to identify additional colonies and to better understand the specific habitat characteristics that make a good home for a metalmark butterfly.

Narrowing the search

It was at this point that Masters student Ashley Wick, under the direction of Parks Canada species conservation specialist and University of Alberta adjunct professor Shelley Pruss, developed a critical habitat model to help narrow down the search for Mormon metalmarks within the park.

The model helps to predict the best and most likely places for the metalmark to exist. To help inform this model, teams of 'citizen scientists' walked 'transects', or defined routes, through the park in the blistering heat of summer looking for butterfly colonies.

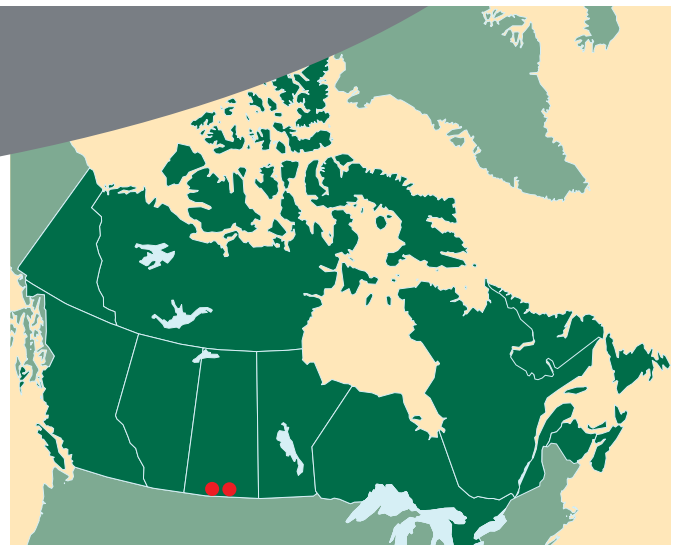
Sixty-five passionate volunteers – many of whom became interested in the project through Facebook and other social media – came from all over Saskatchewan and from as far away as New York and Los Angeles to collaborate with Parks Canada in collecting this vital information.

In so doing, they directly contributed to the recovery of this little-known butterfly. Thanks to their efforts, there are now 132 known colonies of metalmarks in the park - more than twenty times the previously known number!



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Volunteers in action



Grasslands National Park of Canada



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Ashley Wick, researcher

Seeing for the first time – metalmarks in action!

The project also generated exciting new information about the life cycle and reproductive behaviour of this most northern population of metalmarks. For example, the team observed Mormon metalmark caterpillars in 2009, the first time the metalmark had ever been documented in its larval stage in Canada.

These distinctive purple caterpillars primarily spend time on the host plants when feeding and then disappear into the leaf litter at the base of the plant or into cracks in the soil between plants during hours of daylight. Contrary to adult butterflies, which are active during the hottest parts of the day, the caterpillars forage at sunset and in the predawn hours when the temperatures are cooler.

In another important first, in 2011, park scientists observed female metalmarks laying their eggs in areas of exposed rock and soil close to their host branched-umbrella plants. The observed butterflies laid a single egg the size of a pinhead under small rocks or even in cracks in the soil – different behaviour than the females from more southerly populations, who typically lay a cluster of eggs on the underside of host plant leaves.

While many questions remain about these behaviours and what they tell us about metalmarks, this new information makes a key contribution to our understanding of the species. This in turn will help park managers develop more targeted and effective recovery actions to ensure the metalmark's survival in Canada.

Looking to the Future

Much work remains to better understand and ultimately protect the Mormon metalmark. With over 30,000 hectares of badlands in Grasslands National Park and adjacent areas, the simple task of accurately locating colonies seems daunting. But Wick and Pruss remain optimistic – both that the computer model will point them in the right direction and that the enthusiasm and energy of participating citizen scientists will carry them forward down the hot dusty road to success.

For more information, contact:

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