



Aweme, Manitoba – An important historical grasslands site

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Introduction

Aweme is a locality no longer found on most maps of Manitoba or Canada. It consists of two quarter sections of land (Township/Range = NE 32-8-16W and SE5-9-16W) located at 49E43' N and 99E36' W. It is to the west of the junction of the Souris and Assiniboine rivers and lies in the Prairies Ecozone about 40 km southwest of Brandon. Aweme is the name of the Criddle and Vane homesteads which were established in 1882. An area near Aweme is considered to be the largest remnant of the mixed-grass prairie remaining in Manitoba. Previously mixed-grass prairie was the most extensive grassland type in North America comprising 38% of North American grasslands (Lauenroth 1979).

History of the area

Most entomologists have come across specimens from Aweme, MB. The collecting locality is almost synonymous with a single collector, Norman Criddle (1875-1933), although many other collectors (e.g. Ralph Bird, R.B. Handford, R.M. White, J.B. Wallis) visited the site or worked at it



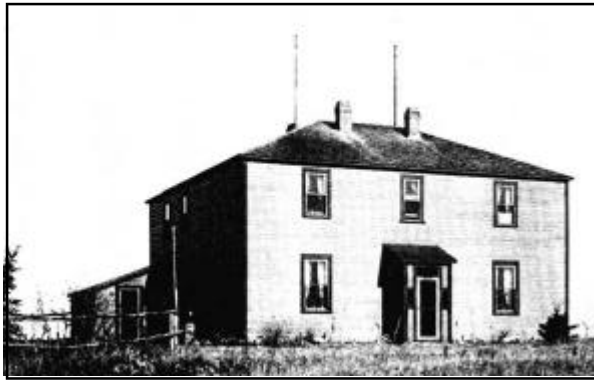
for extended periods of time and all of Norman's brothers were collectors. An appreciation of the respect and high regard for Norman Criddle can be gained from examining his biographies. Biographies of Norman Criddle were published by Gibson and Crawford (1933), Lloyd (1933), Hungerford (1934), Lawrence (1934), Palmer (1934), Bird (1955), Wallis (1955) Scott (1970, 1972), Spalding (1971), and Riegert (1989).



Norman Criddle
(From Report of
International Great Plains
Crop Pest Committee,
 Fargo, 1928)

How many of us will earn or deserve biographical sketches by at least ten authors spread over 50 years? Norman Criddle was a general naturalist with a particular interest in insects. The list of his scientific papers (Gibson and Crawford 1933) is assigned to the following subject headings: Entomology, Ornithology, Botany, Mammology and Wild Life, and Miscellaneous. He worked as an entomologist from 1913 until his death in 1933. During much of his career he was involved with economic entomology, particularly detailed studies of grasshopper outbreaks and methods for their control.

What makes Aweme an important historical grassland site is that we have a continuous record of collecting over a relatively long time period and this collecting record is accompanied by voucher specimens. Norman Criddle was not a taxonomist but he was an avid collector and because



Criddle house - St. Albans 1907
(S. Kohler)

he knew the insects of the region, anything that was new or different was collected and was sent to the appropriate specialist. Because of this practice, his material is spread throughout most of the major insect collections of the world. Norman Criddle's most enduring legacy is associated with his insect collecting. The majority of his specimens are accompanied by only locality, date and collector but his collecting notes are stored at the Manitoba Public Archives in Winnipeg. Many records of insects for Aweme were published in the Entomological Record of the Proceedings of the Entomological Society of Ontario. The first record was published in 1905 and records continued in that journal through 1932. Previously unpublished records of specimens collected by the Criddles continue to this day (e.g. Pollock 1999: Rhiphoridae, *Pelecotoma flavipes* (Melsh.) as a "new" record for Manitoba based on specimens collected by E. Criddle and N. Criddle in 1916 and 1924). Perhaps the most significant holdings of insects are deposited in the Canadian National Collection [CNCI] in Ottawa and in the J.B. Wallis Museum [JBWM] of Entomology at the University of Manitoba in Winnipeg (which now contains the Agriculture Canada collections formerly held at Brandon and Winnipeg). However, significant holdings and type specimens can be found in virtually any museum which had a taxonomic specialist during Criddle's era. For instance, many new taxa of beetles were described from Aweme by H.C. Fall whose collection is at

the Museum of Comparative Zoology, Harvard University, Boston, MA.

The area which Norman Criddle considered to be Aweme was relatively large and not restricted simply to grasslands around his home locality. A common practice of many collectors of his era was to use one locality label for a region. For instance, according to an unpublished manuscript of one of Norman's contemporaries, J.B. Wallis, an annotation of 16E on the collecting label indicates that the specimen was taken at a locality now known as the Devil's Punch Bowl in Spruce Woods Provincial Park. Therefore the label, Aweme, probably covers a circumference of 10 km out from the actual homestead and includes the river bank of the Assiniboine River, springs and fens which are tributaries, and parts of what are now Canadian Forces Base Shilo military base, and Spruce Woods Provincial Park.

The social life of the area and of the Criddle and Vane families is described by Scott (1971), A. Criddle (1973, 1975), and P. Criddle (1978). The main Criddle residence, named St. Albans and built in 1906, became the main social and cultural centre of the surrounding area. The English Victorian lifestyle of the patriarch, Percy Criddle, was imported into pioneer Manitoba. Today we can only marvel at the emphasis on sports, arts, culture and science overlain on a farming venture which could only be considered as eking out an existence. There was a golf course and tennis courts on a farm where initially "...the sandy



St. Albans 1998



soil with plenty of sub-surface moisture [was] producing the best wheat in Manitoba. Grasshoppers, dry weather and winds changed this. The grasshoppers cleaned off all growth of grain on the fields, dry weather permitted the high winds to blow all the sandy top soil away right down to the gravelly hard pan, and the settlers gave up the fight and moved away. But the Criddles stayed.” (Wallis 1955, p. 48). Interesting summaries of biological information about Aweme specifically can be found in Bird (1927) and it is used in a more general format by Bird (1961) as well as many other papers.

Current status

The Criddle family lived at Aweme from 1882 until 1960. From 1960 to 1974 this land went through a number of owners. In 1974 it was acquired by the Province of Manitoba and it has been administered by the Parks Branch. Until 1996 it was considered vacant crown land with a classification that identified it as a unique/rare site for wildlife, with no agriculture permitted. The Criddle homestead is increasingly surrounded by large blocks of centre-pivot irrigation for potato production, which has become the dominant form of agriculture in the surrounding sandy soils. The homestead is becoming an island of habitat and there was much concern about the future of the site. A request from a former landowner to buy back the land in 1996 precipitated a flurry of activity. A letter-writing campaign by Friends of Spruce Woods Park, the Departments of Botany and Entomology of the University of Manitoba, the Entomological Society of Canada, and the Biological Survey of Canada (Terrestrial Arthropods) convinced the Province of Manitoba to maintain Aweme as a heritage site and it has remained a part of Spruce Woods Provincial Park. Unfortunately this block is isolated from the main unit of Spruce Woods, making effective administration of the Criddle homestead a difficult task for Park authorities. The feasibility of development of Aweme as a historical and ecological site is being examined by the Friends of the Spruce Woods Park and the Natural Resources Department.

Collecting permits

Collecting permits are required for collecting at the Criddle homestead. They are available from Manitoba Natural Resources, 4th Floor, 258 Portage Avenue, Winnipeg, Manitoba, R3C 0B6.

Site description

The paleoecology of southern Manitoba was dominated during the late Pleistocene and Holocene by Glacial Lake Agassiz and most of the land forms of the area are remnants of old lake shorelines and beaches. Details of the geological and vegetational history of the area can be inferred from papers in Mayer-Oakes (1967). The postglacial, geophysical history of southern Manitoba is summarized in Teller and Last (1981).

The flora of Manitoba is documented by Scoggan (1957). The native vegetation of Aweme is described in Bird (1927) and Coupland (1950). Various studies have documented changes in the vegetation, particularly the Europeanization of the flora due to agriculture and the effect of the military tanks associated with the Shilo military base. Some papers that contain information about the recent vegetation and disturbance (agriculture, fire and military tank traffic) of the Aweme area are McKernan, (1984), Wilson and Shay (1987), Gorrie and Shay (1988), Wilson and Belcher (1989), Shay et al. (1989 and in press), Kunec and Shay (1990), Wilson and Shay (1990), and Shay (1995a, b). Some of these papers are unpublished reports but many of them contain species lists for selected sites in the Aweme area. The actual homestead area is located between sites 6 and 10.

The vegetation of Aweme is dominated by the shortgrass *Bouteloua gracilis* (HBK.) Lag. (Buffalo grass), a sedge, *Carex obtusata* Lilj., and the midheight bunchgrasses *Stipa spartea* Trin. (Porcupine Grass) and *Andropogon scoparius* Michx. (Wiregrass) as well as the somewhat taller *Koeleria cristata* Pers. (June Grass) In undisturbed areas the creeping evergreen shrub, *Juniperus horizontalis* Moench (Creeping Juniper), is common and there are a number of com-



mon forbs such as *Artemisia frigida* Willd. (Prairie Sagewort), *Cerastium arvense* L. (Field Chickweed) and *Galium boreale* L. (Northern bedstraw).

The invasive weed, leafy spurge *Euphorbia esula* L., is a problem on the property and it rapidly colonizes disturbed areas. Although this area is a release site for flea beetles (*Aphthona* spp., Coleoptera: Chrysomelidae) used as a biological control agent (Shay 1995a), the area is treated occasionally with broadleaf herbicides. The European flora, predominantly invading from abandoned agricultural areas, is composed of *Poa pratensis* (Blue Grass) and *Bromus inermis* (Brome Grass). These two introduced grasses are taller than the native prairie species and affect them negatively. Brome grass appears to be a very poor habitat for insects (Roughley, pers. obs.) reinforcing the long-held observation that many things appropriate for agriculture are not appropriate for conservation.

From vegetation analysis, it appears that certain areas directly to the north and south of St. Albans are undisturbed, unploughed fescue prairie. The remainder of the area appears to have been cultivated. Compared to an earlier photographs of

St. Albans, the site is now more treed. Trembling aspen in particular is becoming more dominant and increasingly is overgrowing the prairie.

Insect fauna

For many years our knowledge of the insect fauna of Manitoba was synonymous with our knowledge of the insect fauna of Aweme. It remains true that the majority of the insect fauna recorded from Manitoba is known only from or was first recorded from Aweme. It is not possible, at the present time, to list the insects collected at Aweme; but a few examples indicate the nature of the insect fauna of Manitoba.

Pollock and Roughley (unpubl.) have surveyed all published records of Carabidae (incl. cicindelinae) of Aweme and supplemented this by examining all of the holdings of the JBWM and CNC for records from Aweme. This combined effort generated a list of 190 species and subspecies of ground beetles from Aweme, which represents 54% of the 350 species of Carabidae known from the province (Bousquet 1991). This result suggests that some of the insects known from Aweme are fairly widespread throughout the Province of Manitoba and many are widespread across Can-



University of Manitoba agroecology students taking samples at Aweme, summer 1999
(N. Holliday)



ada. Some species are western species with their eastern limits at Aweme; some species are eastern species with their western limits at Aweme; other species are prairie species with their northern limit at Aweme.

The distributions of certain other species are much more restricted. *Quedius (Megaquedius) manitobensis* (Casey) (Coleoptera:Staphylinidae) was described from Aweme. It is an interesting example of the collecting abilities of the Criddles. It is currently known only from Aweme and Calgary, Alberta. The few specimens from Aweme were collected in July, 1910, May, 1918, and November, 1927 (Smetana 1971). These specimens were probably extracted from the nest or dung chambers of the northern pocket gopher, *Thomomys talpoides*. During the 1980's, entomologists from the Department of Entomology at the University of Manitoba made a number of forays to collect this insect and other pocket gopher inquilines such as *Foxella ignota* (Baker) (Siphonaptera: Ceratophyllidae). In each case we abandoned our attempts after much searching and digging and at about 2 m in depth. Our problem was that we did not know how to find the appropriate habitat; when we asked local mammalogists about the depth, position and appearance of a pocket gopher nest chamber they said that the only published reports of attempts to dig up nests were made by Norman and Stuart Criddle. Also associated with these burrows are the scarab beetles *Aphodius talpoides* (Brown) and *A. peculiosus* Schmidt, which are still known only from Manitoba and Aweme in Canada. The anthicid beetle, *Notoxus manitoba* Chandler, is known only from the male holotype (Chandler 1982) collected at Aweme by Norman Criddle in 1924.

Other species found at Aweme appear to be at the northern limit of their range. The northernmost record of the stink bug, *Chlorochroa belfragei* (Stål), is Aweme (Scudder and Thomas 1987). There are sporadic records of this species south through North Dakota and South Dakota to Nebraska and east to Illinois. It was formerly

listed as a candidate species for endangered or threatened species status but it is now considered to be a species of management concern in North Dakota (<http://www.greatplains.org/npresource/distr/others/nddagner/species/chlobel.htm>). The Manitoba oakworm, *Anisota manitobensis* McDunnough (Lepidoptera: Saturniidae), is known only from southern Manitoba and extreme northern Minnesota (Tuskes et al. 1996). Type specimens were collected by Norman Criddle at Aweme and were described by McDunnough (1921). This very handsome moth is confined to bur oak habitats and is rarely encountered. The species has been extirpated from many areas of southern Manitoba by intensive agriculture and habitat destruction.

A somewhat different biogeographic pattern is emerging from studies of other groups of insects. A moth, *Pyla arenaeola* Balogh & Wilterding (1998) (Lepidoptera: Pyralidae), is a resident of sand dunes and it feeds on the leaves of bearberry, *Arctostaphylos uva-ursi* (L.) Sprengel (Ericaceae). Despite the widespread distribution of its holarctic host, this pyralid apparently is restricted to a few localities with loose, sandy soils. Documented localities include the dunes of the Great Lakes and Aweme. The disjunct Manitoba record may seem problematic until it is realized that Aweme is located in a region of fossil Pleistocene sand dunes which formed at the delta of the Assiniboine River where it entered glacial Lake Agassiz (Dubois 1976, Teller 1984). Therefore the southern shoreline of Lake Agassiz may have provided a biogeographic corridor between the dunes of the Assiniboine delta and those of the Great Lakes shoreline when glacial Lake Agassiz drained southeastwards into the Great Lakes. A similar biogeographic pattern could be inferred for the winter stonefly, *Capnura manitoba* (Claassen) (Plecoptera: Capniidae) (Burton 1985). This species occurs in a Sphagnum spring-fen located on the margin of the Assiniboine River ca. 3 km SSW of St. Albans. The type locality is Aweme but the known distribution is decidedly eastern.



Most records are from Ontario and Quebec, extending north to Ungava Bay, east to the Gaspé Peninsula and southeastward into New England (Hitchcock 1974). The Aweme record is separated from the closest eastern record by more than 1000 km (Nelson and Baumann 1987, fig. 50, p. 23).

Concluding statement

I admit an inordinate fondness for Aweme. Is it the feeling of being at a historically important locality? Is it the ghosts of past entomologists collecting, thinking and discovering knowledge about insects? Is it the feeling of having the wind in your hair out on the prairie? Is it a day away from telephones and e-mail? Yes.

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