

EXTENDED RANGE AND FLIGHT PERIOD OF THE COMMON BUCKEYE BUTTERFLY IN SOUTHERN MANITOBA

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Introduction and Description

This article describes a recent series of Common Buckeye, (*Junonia coenia* Hübner), butterfly records in Manitoba. These comprise one specimen in 1994, three specimens in 2001, and three specimens plus at least seven individuals seen in 2007. Klassen et al. summarized previous records for the province as follows: nine specimens collected at six locations on 1 to 25 July between 1930 and 1941,

plus a colony reported in Sandilands Provincial Forest in early August 1976.⁷ One of the specimens, a worn female in the Royal Saskatchewan Museum (RSM), collected by J.B. Wallis at Husavik (often written Husavick), is dated 2 July 1910. Since this is one of the localities listed by Klassen et al., it is possible that "1930" is a transcription error.⁷ Details of all recent records (1994 to 2007) are provided in Table 1, and localities for both recent

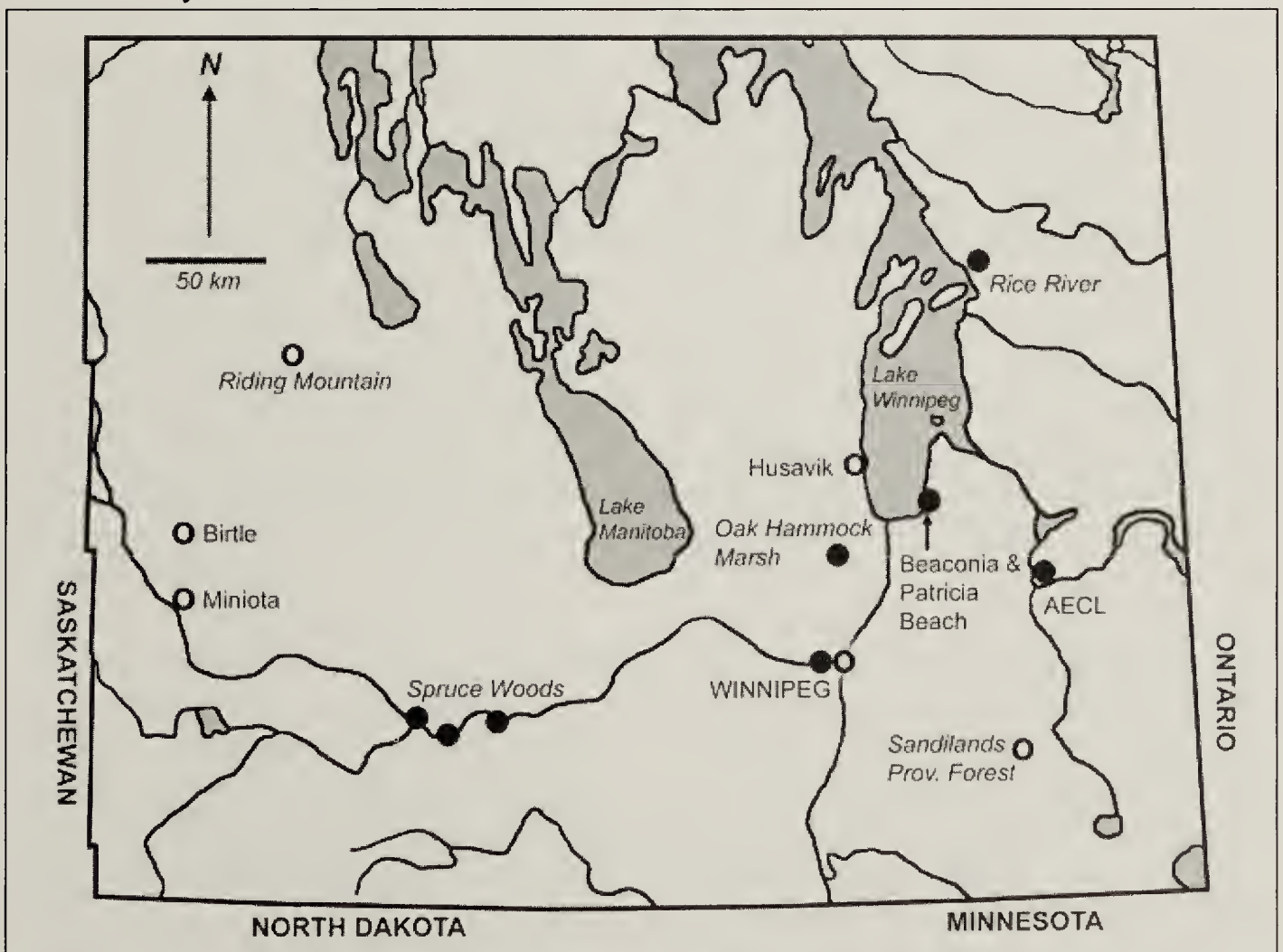


Figure 1. Map of Buckeye records for Manitoba. Open circles represent historic records (1910 to 1976); filled circles represent recent records (1994 to 2007).

TABLE 1 : Recent Manitoba Buckeye records

Date	Number	Record Type	Location	Latitude	Longitude	Observer
20 July 1994	1	specimen	Winnipeg	49° 52' 40"	97° 04' 35"	D.G. Delf
29 June 2001	1F	specimen	Rice River Road	51° 19' 57"	96° 22' 13"	R. Westwood
4 July 2001	1M	specimen	Rice River Road	51° 21' 50"	96° 23' 09"	R. Westwood
18 August 2001	1F	specimen	Rice River Road	51° 19' 57"	96° 22' 13"	R. Westwood
24 July 2007	1F	specimen	Spruce Woods – Shilo area	49° 40' 49"	99° 02' 14"	R. Westwood
25 July 2007	1M	specimen	Spruce Woods – Shilo area	49° 44' 16"	99° 37' 08"	R. Westwood
17 August 2007	1F	specimen	Spruce Woods – Shilo area	49° 38' 51"	99° 27' 21"	R. Westwood
23 August 2007	1	observation	Winnipeg	49° 52' 05"	97° 06' 53"	L. de March
15 September 2007	1	photograph	Beaonia beach	50° 26' 24"	96° 34' 55"	P. Taylor
16 September 2007	2	photograph	Oak Hammock Marsh *	50° 10' 57"	97° 09' 36"	L. de March
17 September 2007	1	observation	Patricia Beach	50° 25' 35"	96° 36' 29"	L. Klassen
17 September 2007	2	observation	Oak Hammock Marsh *	50° 10' 57"	97° 09' 36"	L. Klassen
3 October 2007	2	observation	AECL property w. of Pinawa †	50° 10' 30"	96° 03' 40"	P. Taylor

* The two Oak Hammock Marsh records may have involved repeat sightings of the same two individuals.

† Atomic Energy of Canada Limited (Whiteshell Laboratories).

and historic records are mapped in Figure 1.

The Common Buckeye (hereafter, Buckeye) is a medium-sized nymphalid butterfly, though with considerable geographic and generational variation in size, as well as sexual dimorphism. It resembles the Red Admiral in its silhouette, rapid flight, and territorial behaviour. The primary field mark in flight is a creamy-white patch toward the tip of each forewing. At rest with wings folded above the back, a leaf-like appearance is maintained (Figure 2, on inside back cover, middle). In a dorsal basking posture, however, the butterfly displays a rich pattern of peacock-like "eyes" and orange markings, as well as the bold, creamy patches noted above (Figure 3, on inside back cover, bottom).

Migration and Distribution

Opler and Krizek classify the Buckeye as an emigratory species, characterized by irregular northward expansions, usually during late summer.¹¹ These movements may represent either northward migratory behaviour or dispersal from areas with elevated populations. This is distinct from species such as the Monarch that perform well-defined two-way migrations. Some butterflies, for example the Red Admiral and Painted Lady, show northward movements in varying numbers in spring, with less frequently observed return flights.^{9,10}

The Buckeye's core winter range is in the southern United States and northern Mexico.¹¹ The northward emigratory range extends through most of the lower 48 United States, except Montana, Washington and much of Idaho and Wyoming, to parts of southern Canada.^{1,3,5,8,11} Records are sparse in many of the northern states, and most Canadian records are

concentrated in southern Ontario and Quebec, northward to Manitoulin Island, Algonquin Park, and Quebec City.^{3,8} In states adjoining Manitoba, recent distribution maps show records for 16 of 87 Minnesota counties and 6 of 53 North Dakota counties.¹ In northwestern Ontario there is an outlying record for Geraldton, east of Lake Nipigon.^{3,8}

Ron Hooper, a long-time Saskatchewan entomologist and frequent contributor to this journal, noted some years ago that the Buckeye should be watched for in southeastern Saskatchewan as well as in southern Manitoba.⁴ More recently he confirmed that there are still no definite records for Saskatchewan, though the RSM has a Buckeye wing donated by a resident of Bracken in southwestern Saskatchewan, and possibly found there (R. Hooper, letter to PT).

Food Plants and Habitat

Commonly cited larval food plants belong to the plantain and figwort families (*Plantaginaceae* and *Scrophulariaceae*): ribgrass or English plantain (*Plantago lanceolata*), snapdragon (*Antirrhinum* sp.) gerardia (*Gerardia* sp.), and toadflax (*Linaria* sp.).^{1,5,7,11} Several of these plants are exotic to North America. As with many butterflies, preferred nectar sources for adults include various composites (*Asteraceae*) and dogbane (*Apocynum* sp.).¹¹

Buckeyes generally prefer open areas with low vegetation and at least some areas of bare ground, e.g., roadsides, dry fields with dirt roads, open pine woods, beach dunes, and railroad tracks.¹¹ Royer mentions their occurrence on mown lawns and 'untended lawns when plantain growth is flourishing'.¹² Recent Manitoba records are consistent with these

descriptions. Observation sites along the Rice River Road in 2001 consisted of gravel roadside clearings in mixed boreal forest dominated by Black Spruce, Jack Pine, and Trembling Aspen. Buckeye specimens found in and near Spruce Woods Provincial Park in 2007 were frequenting open, mixed prairie sites containing numerous species of flowering herbs. The *Beaconia* and *Patricia Beach* sightings were on a sandy stretch of Lake Winnipeg shoreline. The Oak Hammock Marsh records were near an artesian spring adjoining restored prairie, and the butterflies settled mainly on bare ground. Those near Pinawa were in disturbed areas near a small sewage lagoon adjoining an industrial site in mixed boreal forest.

Flight Periods and Possible Origins

In southern Ontario, immigrant Buckeyes arrive in June, their progeny emerge in late July, and the flight period extends to early October, with a possible late brood emerging in September.³ Some July specimens from older records in Manitoba show signs of wear, and they are possibly immigrant adults originating in the northern United States.

Based on wing appearance, the late June and early July 2001 specimens from the Rice River Road were freshly emerged. They had evidently either originated at the collection site or very recently arrived from sites close by. They may have been offspring of immigrant adults that could have laid eggs in May. It is unlikely that they represent a local resident population, given what is known of the species' distribution and habits.

The specimens collected in the Spruce Woods–Shilo region in 2007 were not particularly worn but certainly not freshly emerged; they may well

have originated in the Dakotas. Twenty plots in this region were sampled twice a week from mid-June to late August, and it is unlikely that the species would have been overlooked, if present in any numbers, before the two late-July records.

One of the two individuals seen near Pinawa on 3 October 2007 was in immaculate condition, suggesting local emergence. The *Beaconia*, Oak Hammock Marsh, and *Patricia Beach* butterflies were seen during and immediately after a strong southerly wind on 15 September 2007, thus they may well have originated elsewhere. They appeared only slightly worn, except for damaged wing tips on one of the Oak Hammock Marsh individuals.

Discussion

A warming climate may dramatically affect the distribution of many organisms, including butterflies.^{2, 6, 13} For an emigratory insect such as the Buckeye, one might expect more northerly overwintering, emigration, and breeding to occur. At the northern edge of the range, earlier arrival dates, more frequent occurrence of late broods, and longer survival into the fall months would also be predicted. Our recent observations of Buckeye butterflies in Manitoba are consistent with these expectations. The 2001 records along the Rice River Road (see Table 1) were about 200 km north of the 1976 colony in Sandilands Provincial Forest.⁷ The records compiled in Table 1 expand the flight period to 29 June – 3 October, with a strong possibility of some arrivals as early as May. A cluster of Manitoba records from the 1930s to 1941, however, suggests a possible periodic pattern, perhaps linked to episodes of drought in the Great Plains states and provinces.

Occurrence of Buckeyes at their northern range limit is known to be sporadic. For example, at Ottawa, Ontario one specimen was collected in 1966 and one individual was seen in 1996, but a "major invasion" occurred in 1981. Three temporary breeding colonies were formed, and the species was observed for several months at an old gravel quarry where two of the preferred larval food plants, gerardia and toadflax, were abundant.⁸

We hope this article will encourage other naturalists to look for this attractive butterfly in Manitoba and neighbouring regions, and to document any further extensions of its range and flight periods.

Acknowledgements

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"In the passage from day to night there is to me always something mysterious. In the forest that hour is mournful and sad. Around reigns an oppressive silence. Then the ear just catches some barely audible sound, as though distant sigh. Whence does it come? It seems as though the taiga itself is sighing." V. K. Arseniev, *Dersu the Trapper*, p. 125.