Date and time: Sunday August 17 2014 1:45 - 7:15 pm
Weather: Pr 25 mm; RH 91%; BP 101.6 kPa; calm; cloud/sun; T 25º C
Activity: Fossils on Mussel Beach and continuing ATBI

Driving in today, we were pleased to see that the annual goldenrod bloom has now started, with 5-10% of plants already in flower. Although this will increase visible insect populations, we had already decided on a change of pace for this visit, with a casual survey of fossil life on Mussel Beach (at the river). These are relicts of the Devonian age, about 350 million years ago and no longer eligible for the ATBI list!

Before heading for the river we made a brief walkabout to search for new arthropods. Visits to goldenrods already in bloom immediately unveiled new species, such as the small sawfly *Tenthredo* (a kind of wasp) shown here.

Other finds in the walkabout included a tiny tussock moth caterpillar, two bright red oak hedgehog galls (Cynipid wasp), a new ichneumon with white, quivering antennae, a black rove beetle in the Nook, not to mention a pair of copulating moths we found up by the gate on coming in. During the foray Pat had been practicing with her camera, learning how the focus worked.

There had been few birds visible or calling out in the open today, but things picked up at to the river, where Pat saw some Northern Roughwinged Swallows and

Cedar Waxwings plying their trade, batlike, over the sluggish brown current. We intended to make a collection of fossils on Mussel Beach, now exposed and easy of access. We don't call it Mussel Beach for nothing. Numerous valves of many species littered the hard clay. Interspersed with these in silent irony were the remains of much older molluscs, hundreds of millions of years older, long extinct and thus not eligible for the ATBI list.

Origin of the fossils: During the mid-to-late Devonian Age (417 to 354 million years ago) North America was tilted on its side, nearly at right angles to its present orientation. In fact at one point in time the equator may have gone right through the area that would later become Newport Forest! A shallow epicontinental sea covered much of the continental interior, leaving beds of sediment later to become shale and limestone, some of them rich in fossils. However the fossils found on the beach are not "local" in that sense but transported in by glaciers over the last hundred thousand years or so — as part of glacial till, dredged up from deposits to the north and northwest. Anyone interested in fossils should visit Arkona and the fossil rich sites in that area. And if one wants to attempt identifying fossils, the go-to book is still *Index Fossils of North America*, Shimer & Shrock, MIT Press 1944.

Another curiosity that occasionally appears on the beach are "thunderstones", as Natives call them. These are iron-rich nodules or concretions that grew by bacterial action in those same Devonian sea bottoms. We found a particularly good (and heavy) example of a thunderstone in today's outing and took it back with us to the trailer. I was keen to see the metal detector howl when placed near the thunder-stone. Nothing! Why must we be constantly confronted by mysteries?

E**mail:** Contact us at akd@uwo.ca

Birds: (12)

American Crow (TR); American Robin (ET); Blue Jay (GF); Cedar Waxwing (TR); Common Flicker (TR); Common Grackle (GF); Common Yellowthroat (LM); Gray Catbird (RL); Northern Roughwinged Swallow (TR); Red-bellied Woodpecker (GF); Song Sparrow (RL) **Note:** We also heard what sounded like a Yellow-billed Cuckoo calling from the Fleming Creek Forest, but can't be sure.

Phenology: Goldenrod spp starting to bloom

New Species: (Some of these have been worked on for a week or more.)

'Spotted Minijumper'	*Pseudeuopphrys erratica*	UM KD Au07/14
Gold Beetle	[*Graphops pubescens*]	LM/HBF KD Jl05/14
'Red-and-black Ichneumon'	*Cratichneumon* [*paratus*]	LM/GF KD Au17/14
'Black-and-yellow Sawfly'	*Tenthredo basilaris*	LM/GF pdKD Au17/14
'Hex-winged Crane Fly'	*Epiphragma solatrix*	Tr KD Au17/14

IMAGES:

Fossil collection on Mussel Beach shows a variety of brachiopods (the "winged" fossils), a rugose coral (centre), a branching coral (small stick-like fragment), and a tabulate coral (right of that). The brachiopods on Mussel Beach mostly belong to genera *Spirifer* and *Mucrospirifer*, both common in fossiliferous local deposits of Devonian age. Fragments of crinoids also show up on the beach.

Entomology Alert: According to a former entomology professor, the proper scientific term for pairings like the one above is *in flagro delecti.* (I can't verify the terminology). The main question for this pair on the milkweed leaf is not whether they're married, but just what species they belong to. For example, is it the Hickory Tussock Moth (*Lophocampa caryae*)? It has about the right size, shape, background colour and linear markings, but only a few of the cells so defined are filled in with white or yellow. I have reviewed several dozen images of that species, but have found no similar variants. And no. It's not the Milkweed Tussock Moth. (Original imagery available on request.)