



The
Waterhouse
Club

The Waterhouse Club Inc.
Founded 1987
An Association of the
South Australian Museum

South Australian Museum
North Terrace, Adelaide SA 5000
Telephone +61 8 8203 9802
waterhouseclub@samuseum.sa.gov.au
www.waterhouseclub.com

THE WATERHOUSE CLUB

invites you to join an Expedition to

EXPLORE FANTASTIC FOSSILS ACROSS CANADA

**A rare opportunity to participate in a comprehensive tour of Canada's premier fossil regions
with Dr Diego Garcia-Bellido**

Saturday 4th August to Friday 17th August 2018

Expedition Overview

This expedition will traverse Canada from the dramatically tilted and cleaved Atlantic Coast of Newfoundland, to the beautiful, diverse, moonscape-like topography of the Badlands of Alberta, and finally to the ancient mudstones of the Burgess Shale in the spectacular Canadian Rockies. The expedition will begin in St John's Newfoundland and end in Banff/Calgary, Alberta.

While the foundation science of the expedition will be palaeontology, each of the main areas of study is located in an area of spectacular natural beauty, rich in wildlife. In Newfoundland we plan to see seabirds and whales, in the Alberta Badlands deer, mule-deer, cottontail rabbits as well as many bird species, while the Burgess Shales is located in the incredibly scenic mountains of Yoho National Park, home to wolf, elk, moose and bear.

To *Explore Fantastic Fossils Across Canada* is a rare opportunity to experience the three premier locations of Canada's rich fossil legacy:

- The Ediacaran assemblage of Mistaken Point, Newfoundland
- The Cretaceous dinosaurs of Drumheller, Alberta
- The Middle Cambrian assemblage of the Burgess Shale, British Columbia.

Expedition Highlights

Mistaken Point Ecological Reserve in Newfoundland is a 17 kilometre long strip of rugged, naturally eroding coastal cliffs. The Ediacaran fossils of the region are slightly older and less diverse than our own Ediacaran assemblage in the Flinders Ranges. They illustrate a watershed in the history of life on earth; the appearance of large, biologically complex organisms after almost three billion years of micro-dominated evolution. Diego and a local expert will lead expeditioners' examination of fossil impressions that are readily visible along the coastline.

Newfoundland is also home to more than 35 million seabirds, and on the trip to Mistaken Point we plan to visit world-class seabird sanctuaries, including viewing the charismatic Puffin. This leg of the expedition will also include visiting whale watching sites.

In Toronto expeditioners will experience the peerless collection of the Royal Ontario Museum, which has the best displays from all three fossil locations.

During a visit to Drumheller in Alberta's enigmatic Badlands we plan to visit the Royal Tyrrell Museum dedicated exclusively to the science of palaeontology and housing one of the world's largest displays of dinosaurs, as well as the field locations in which they occur.

Slightly younger than the fossils in our own Big Gully on Kangaroo Island, the Burgess Shale is famous for the quality and diversity of new life forms fossilised from the middle Cambrian Period. These have been the focus of intense scientific study since their discovery by Charles Walcott in 1909. The road trip through spectacular Rocky Mountain scenery to the setting off point to Burgess Shale will include the Icefields Parkway with its mountains, glaciers and extraordinary lakes. The expedition culminates with a hike into Walcott Quarry with Diego and an expert local guide.

Please note that the hike to Walcott Quarry is a physically demanding 9-10 hour exercise. For more detail, see <https://www.pc.gc.ca/en/pn-np/bc/yoho/activ/burgess/burgess-visit/walcott>. For those who choose not to make the trek, there will be separate opportunities to see the fossils and enjoy the spectacular local scenery under Carol's guidance. Please refer to the Itinerary Day 13 for further information.

Our Scientist

Dr Diego Garcia-Bellido took up his appointment in Adelaide in 2013 from Madrid. Diego is now the holder of a prestigious Australian Research Council Future Fellow with the University of Adelaide and is an Honorary Researcher at the South Australian Museum - an immensely knowledgeable scientist of great personal charm. Diego's principal field of study is the creatures of the Cambrian Period some 524-500 million years ago questioning how they might have evolved from the soft bodied creatures of the earlier Ediacaran era some 570-550 million years ago. This question is known as 'Darwin's Dilemma' - Darwin's theory had no explanation of what came before the hard bodied creatures of the Cambrian. Diego's field work has been world-wide and includes three seasons on the Burgess Shale that we will visit. He has made major discoveries reported in 'Nature' at our Emu Bay Fossil beds as well as being deeply knowledgeable on our Ediacaran fossil beds in the Flinders Ranges.

Our Leaders

Carol and Trevor Ireland are very experienced and highly valued Waterhouse Club Expedition Leaders. They have been leading Waterhouse Club Expeditions since 2010. They are experts in their own right in biology and geology, and their expeditions focussing on geology and palaeontology have become 'must-do' fixtures on the Waterhouse calendar.

Travel and Accommodation

In-Canada logistics, including domestic flights, will be organised by Peregrine Travel. We are planning four star accommodation (occasionally three or five depending on what is available) and land transport by comfortable air-conditioned bus. As stated in the Expedition Overview, the expedition will begin in St John's Newfoundland and end in Banff/Calgary, Alberta. Travel from the beginning and ending locations of the expedition are at your own cost and you will need to make your own travel arrangements to and from these locations.

Expedition Cost

The estimated expedition cost is AU\$12,200 per person, based on twin share accommodation. There may be some adjustments to this as AU\$ amounts for final payment may be subject to A\$:US\$ exchange rate at the time. A single supplement is available at a cost of A\$2,235 for the 13 nights. Refer to the Booking Terms and Conditions form for further information about contractual arrangements.

The Itinerary Outline follows. More detailed information will be provided as planning progresses and Peregrine Travel confirm arrangements.

ITINERARY OUTLINE

The Itinerary will be supplemented by presentations where applicable by Diego and local experts. It reflects current plans but may be subject to minor amendment as detailed planning evolves.

Day 1: Saturday 4th August. Expeditioners arrive in St Johns, Newfoundland. Expedition begins at 4pm in the Courtyard by Marriott Hotel, St John's.

Day 2: Sunday 5th August. Orientation day in St Johns, sightseeing Canadian settlement history, and an introductory discussion with local university personnel about the Newfoundland Ediacaran history. Opportunity to be certificated as a member of the Royal Order of Newfoundland Screechers – an ancient ceremony involving dark rum and cod kissing! Own arrangements for dinner.

Day 3: Monday 6th August. We board the bus for a transit day to Trepassey in the Mistaken Point fossil area, via whale-watching sites and seabird rookeries (including Puffins), and historical coastal settlements.

Day 4: Tuesday 7th August. Detailed examination of the Mistaken Point Ediacaran Fossil occurrences with Diego and expert local guide.

Day 5: Wednesday 8th August. Travel to Cape St Mary's looking at world-class seabird sanctuaries. View indigenous wildlife at Salmonier Nature Park. Explore the terrain and cliffed coastline to historic Placentia.

Day 6: Thursday 9th August. Transit Day. After exploring Placentia's 17th Century fortress, return to St. John's via Rodrigues Blueberry Wines and Spirits at Whitbourne. Fly from St Johns to Toronto, departing around 4pm and arriving in Toronto around 6pm.

Day 7: Friday 10th August. Visit the Royal Ontario Museum. We have arranged a guided tour of Canadian fossils from Mistaken Point, Burgess Shale and Drumheller at the Museum before and after lunch. (ROM has all of the very best specimens from all three locations) Own arrangements for lunch, then free to explore Toronto highlights through the later afternoon (such as a harbour cruise, St Lawrence or Kensington markets, CN Tower, Distillery historic district or Science Centre, amongst others).

Day 8: Saturday 11th August. Transit day. Fly Toronto to Calgary then take the short bus ride to Drumheller, Alberta. After hotel check-in, time to enjoy the spectacularly different scenery of the so-called 'Badlands'.

Day 9: Sunday 12th August. See the comprehensive display of the dinosaur story at Tyrrell Museum, then bus to Brooks, Alberta, and close by Dinosaur Provincial Park.

Day 10: Monday 13th August. Observe the field locations of Drumheller's renowned dinosaur fossil occurrences, with expert guidance and explanations. Own arrangements for dinner.

Day 11: Tuesday 14th August. Bus to Lake Louise (in Banff National Park) via Calgary, a scenic transit day through spectacular Rocky Mountain scenery.

Day 12: Wednesday 15th August. Explore the Icefields Parkway, mountains, glaciers and extraordinary lakes. Travel out onto the Athabasca Glacier and chance to walk on it.

Day 13: Thursday 16th August. We have the opportunity to walk into Walcott Quarry with Diego and an expert local guide to view the incredible Burgess Shale. It is a demanding four hours in and three hours out with a vertical ascent of 800m, starting at around 1500m. Carol will be remaining at Lake Louise and will

organise some alternative activities for those who do not wish to climb the mountain. The Grand Finale Dinner will be in the evening.

Day 14: Friday 17th August. Our expedition concludes after breakfast. Return by bus to Banff or Calgary Airport for onward travel. Trains to Vancouver go from Banff, and Calgary is a major air transport hub.

Onward travel option. Banff is one of the take-off points for the Rocky Mountaineer train to Kamloops and Vancouver (approximately. \$1600 for 2 days, Silver Leaf Class, individual arrangements only – not a part of the expedition).

WHAT TO DO NEXT

If you would like to discuss the physical requirements of the hike to the Walcott Quarry Burgess Shale fossil site before committing to book for this expedition, please contact the Expedition Leaders, contact details below.

Please note: the expedition is limited to 20 places. Those who have expressed early interest will have priority for 3 or 4 days from issue of this invitation after which bookings will be accepted in order of receipt at the Waterhouse Club office.

Peregrine Travel require deposits to confirm accommodation arrangements as a matter of urgency. Your booking form and payment of a non-refundable deposit by Monday 21 August is therefore requested.

We look forward to you joining us on this rare opportunity to participate in a comprehensive tour of Canada's premier fossil regions with Dr Diego Garcia-Bellido.

If you have any queries or would like further information about any aspect of the expedition please do not hesitate to contact either Trevor or Carol.

Trevor and Carolyn Ireland
Expedition leaders

Contact Mobile: Trevor: 0409 699 267 or Carol 0400 309 207

Email: waterhouseclub@samuseum.sa.gov.au

Suggested Introductory Reading and References

Fedonkin, M.A, Gehling, J.G., Grey, K., Narbonne, G.M. and Vickers-Rich, P (2007) *The Rise of Animals: Evolution and Diversification of the Kingdom Animalia*. The Johns Hopkins University Press, Baltimore, Maryland.

Ediacaran globally

Foster, J.R. (2014) *Cambrian Ocean World: Ancient Sea Life of North America*. Indiana University Press, Bloomington, Indiana.

The Burgess Shale

Gould, S.J. (1990) *Wonderful Life: The Burgess Shale and the Nature of History*. W.W. Norton and Company, New York.

Each of these widely available books contains an extensive (occasionally dated) bibliography
Information on the Drumheller dinosaur fossil fields is widely available via basic internet search.

References to additional scientific publications, more recent, more specific in focus and technical in nature can be made available on request to Trevor & Carol (tireland@irimpl.com.au).