A symposium focusing on Cretaceous and Paleogene vertebrate paleontology of the Western Interior

September 14th - 15th 2019 (presentations)
September 13th & 16th, 17-18th 2019 (optional fieldtrips)

Schedule of presentations - added Aug 29th

Dickinson, North Dakota

Badlands Dinosaur Museum, North Dakota Geological Survey, and Dickinson State University are delighted to invite you to attend our symposium, *Cretaceous and Beyond - paleontology of the Western Interior.*

Scope

The main emphasis of the meeting is the evolution, ontogeny, and paleoecology of vertebrates from the Late Cretaceous and Paleogene (Paleocene, Eocene, Oligocene) of North America. However, presentations on relevant non-vertebrate fields such as stratigraphy, geochronology, palynology, paleobotany, and invertebrate paleontology will also be welcome, keeping in mind the audience of mainly vertebrate paleontologists. Presentations on other time periods or geographic regions should clearly explain their relevance for vertebrate researchers in the Cretaceous and Paleogene of the Western Interior (e.g. intercontinental migration or variation, with Asian fauna, etc.).
Presentations are expected to represent primary research.

A limited number of presentation slots will be available for presentations on land use, and political or legal stewardship issues. If you have an idea for a presentation topic not listed here, please contact eafreedman [at] gmail.com or denver.fowler [at] dickinsongov.com to enquire about the suitability of the topic for this conference.

Platform presentations are 15mins, with 5 mins for questions (total 20mins per presentation). For abstracts with multiple co-authors, different parts of the presentation may be given by different individuals so long as it fits within the time limit.

Up to two first-authored abstracts can be submitted for consideration. However, a second platform presentation will only be offered after all other attendees who wish to present a talk (and whose abstract has met the required quality and content standards) have already been allocated a slot.

We will also be hosting a "lightning talks" session comprising 5 minute presentations on the latest results. For example you might present the highlights of your 2019 field program or laboratory work. Perhaps you have an unusual research or lab problem and want some quick feedback from the audience. These presentations are in addition to the regular program and require only the name of the presenter and a short description (such as “field report”).

A PDF copy of the abstracts volume will be permanently hosted on the North Dakota Geological Survey website.

**Schedule and Abstracts:**

*Accepted titles, authors, & abstracts (added Aug 29th)*

The schedule of accepted presentation titles, authors, and link to abstracts can be found on the Symposium Schedule page.

Note that full length abstract submission is now closed, although we will still accept submissions for lightning talks or posters:

**Submission & Formatting**

Detailed abstract formatting and submission instructions can be found on the Abstract Submission Page.
Background

The symposium was conceived to provide a venue for North American vertebrate paleontologists who might be unable to attend the 2019 Society of Vertebrate Paleontology, which is being held in Australia. The emphasis on Cretaceous and Paleogene vertebrates reflects the internationally significant fossil resources of the western Great Plains, which form the research and fieldwork foci of the host institutions.

Although aimed primarily at paleontology professionals, the symposium will include a public event in which a selection of attendees give brief overviews of their research, followed by a panel discussion with questions from the audience. This event will also be live-streamed so viewers around the world may participate.

Registration & fees (updated Aug 28th 2019)

- Early registration (before June 8th, 11.59pm MT): $40
- Late registration (June 9th - Sept 5th): $50
- On-site registration: $60

Online registration has closed, but you can still register onsite at Murphy Hall during the symposium itself.

The Meeting Registration fee includes access to all lectures, poster sessions, coffee services, and a buffet dinner at the Welcome Reception held at the Badlands Dinosaur Museum.

Meeting registration is required for all field trip attendees.

Field trips are optional but subject to additional fees:

- Pre-meeting fieldtrip - "Paleogene of ND": $50
- Post-meeting fieldtrip - "K-Pg boundary of ND": $50
- Post meeting fieldtrip - "Judith River & Hell Creek of MT": $140 (full service) or $25 (self-driving, etc).

See field trips section below for further details.

A traditional meal at the Ukrainian Cultural Institute (borscht soup, sausages, and pyrohy filled dumplings) will be available on Saturday lunchtime (50 guests maximum) for additional charge ($14).

Childcare facilities will be available for a small fee.
Lodging

The host hotel for the conference is the La Quinta Inn and Suites by Wyndham Dickinson. The hotel includes complimentary breakfast and wi-fi, and is conveniently located near the Badlands Dinosaur Museum and several dining options.

To receive the special group rate of $79.00 per night, please call the hotel at 701-456-2500 and mention the group name: “Cretaceous and Beyond Symposium”.

https://www.wyndhamhotels.com/laquinta/dickinson-north-dakota/la-quinta-dickinson/overview

La Quinta Inn & Suites Dickinson
552 12th Street West
Dickinson, ND 58601
Phone: 701-456-2500

Walking distance between the La Quinta and museum (Saturday evening dinner/reception) is half a mile (less than 10 minute walk). Walking distance between the La Quinta and university (talks & posters) is 1.2 miles (25 minute walk through pleasant residential area). We are hoping to offer shuttle service between the host hotel and university/museum. Please contact us if you would prefer to use the shuttle service.

Please note that no conference events are held at the host hotel itself, so you are very welcome to stay at any of Dickinson’s excellent hotels. If you are planning on walking between your hotel and the conference sessions on the university campus, please note that the closest hotel to the university is the 1026 Oasis Inn at 1026 W. Villard Street. Space is limited at the Oasis Inn, so if you are interested in this option, please book early!

There are also many other hotels within the city (see this map/search at Hotels.com; please note that we have no affinity with any external websites or companies).

Presentations & Field Trips

- Fri. 13th Sept. - North Dakota field trip (optional; 30 persons maximum)
- Sat. 14th Sept. - First day of presentations (Dickinson State University)
- Sun. 15th Sept. - Second day of presentations (Dickinson State University)
- Mon 16th Sept. - The K-Pg boundary of SW North Dakota (optional; 53 persons maximum)
- Tues 17th-Weds 18th Sept. - Montana field trip (optional)
Social & Public events

- Sat. 14th Sept. - Lunch at the Ukrainian Cultural Institute. Full traditional Ukrainian meal of borsch (soup), sausages, and pyrohy (filled dumplings). (additional charge ~$14, maximum 50 guests)
- Sat. 14th Sept. - 4-6pm - Guest speakers and panel discussion (free, open to public)
- Sat. 14th Sept. - Social evening and traditional German dinner buffet catered by The Wurst Shop in Dickinson (Badlands Dinosaur Museum; included in registration)
- Other events TBD
Presentations will be hosted at Dickinson State University where we have two lecture theaters available equipped with modern seating and accessibility options, and the latest projection and A/V equipment.

We therefore have capacity for up to two concurrent sessions of platform presentations (depending on demand), along with space for poster presentations in the same building.

Adjacent classroom space can be used for meetings of small groups.

A number of hotels and restaurants are located within walking distance of Dickinson State University and Badlands Dinosaur Museum, with many more available within a short drive.
Badlands Dinosaur Museum

Formerly operating as Dakota Dinosaur Museum (1992-2015), Badlands Dinosaur Museum is located within the city of Dickinson and is part of the 12 acre campus of Dickinson Museum Center. The museum was acquired by the City of Dickinson in 2015 and is undergoing a complete overhaul of facilities and exhibits as part of its transition into a public institution.

The museum will host the reception evening for the symposium, where attendees will have the opportunity to tour our facility and view the exhibits, including our award winning feathered dinosaur models (pictured).

This symposium page is hosted within the Dickinson Museum Center website, so we invite you to scroll up to the main menu bar and peruse the rest of our online content.
The Paleontology program at the North Dakota Geological Survey maintains the North Dakota State Fossil Collection, which is the official state repository for fossils and associated data, and operates an extensive field and classroom based educational outreach program. Their offices are in the North Dakota Heritage Center & State Museum (Bismarck, 100 miles east of Dickinson), which includes exhibits on the paleontology and geology of North Dakota.

The North Dakota State Fossil Collection consists of tens of thousands of plant, invertebrate, and vertebrate fossils from Cretaceous through Pleistocene rocks in North Dakota. Research visits to the collections are encouraged but space is limited, and all visits must be arranged prior to the symposium. Collections visits will not be possible between September 13th and September 15th.
About Dickinson, North Dakota

Dickinson is a thriving town of around 25,000 residents in western North Dakota, adjacent to I-94. As the hub city of SW North Dakota, Dickinson is well-served by hotels, restaurants, and entertainments, including two cinemas, one of which is located at the university.

Local places of interest

- **Dickinson Convention & Visitors Bureau**'s website should be your first stop to get all the information about hotels, bars, restaurants, and everything else about tourism in SW North Dakota.
- **Pioneer Trails Regional Museum** contains exhibits & collections of regional paleontology and history and is located in Bowman, ND, 74 miles SW of Dickinson.
- The city of Glendive, MT, is located 98 miles west of Dickinson in Eastern Montana. Glendive is host to **Makoshika State Park**: 17 square miles of badlands featuring outcrops of the Hell Creek and Fort Union Formations (including the K-Pg boundary). Both Makoshika State Park Visitor Center and **Frontier Gateway Museum** (also in Glendive) feature paleontological displays.
- Dickinson's **Ukrainian Cultural Institute** celebrates SW North Dakota's Ukrainian heritage. The institute will be hosting us on Saturday lunchtime for a traditional Ukrainian meal (additional charge; see above). Visitors to the institute might also have an opportunity to experience traditional Ukrainian egg painting.
- **Lake Ilo National Wildlife Refuge** is 40 miles north of Dickinson and popular for hiking and bird watching.
- **Theodore Roosevelt National Park** is only 30 miles west of Dickinson. It is part of the **Little Missouri National Grassland**, which at over a million acres is the nation's largest grassland.

Travel

Dickinson is easily reached by road, with I-94 passing through the city (exits 59, 61, and 64.)

Dickinson is served by **Dickinson Theodore Roosevelt regional airport**, which has daily flights to and from Denver, CO, and is located only 6 miles south of town. Alternatively we also expect some attendees might fly into Bismarck Municipal Airport, located 103 miles east on I-94. We are investigating the possibility of a limited shuttle service to both airports (TBC).

A number of vehicle rental companies are available in Dickinson, and at both airports.
Field Trips

Paleogene Faunas Of North Dakota

Friday September 13th

Most of the rocks exposed on the surface in southwestern North Dakota record the recovery and diversification of life after the Cretaceous-Paleogene extinction. This field trip will start in the hot and humid Paleocene swamps of the Fort Union Group with stops at sites preserving diverse vertebrate and invertebrate faunas deposited in large, shallow lakes in the area of Medora, North Dakota. Those deposits are dominated by crocodylians, turtles, and fish, though fossils of birds, mammals, and amphibians are also present. From there we’ll move on to the area southwest of Dickinson known as the Little Badlands, where local exposures of the Eocene through Oligocene Golden Valley, Chadron, and Brule Formations record the transition from a warm and humid environment, to a cooler and dryer environment. We will finish the day at the Fitterer Ranch fossil locality, examining the rocks and fossils that record an atypical environment for the Oligocene of the Great Plains where amphibians, fish, and alligatoroids thrived and oreodonts are rare compared to contemporaneous rocks in South Dakota and Nebraska.

Any fossils collected during the field trip will go to the North Dakota State Fossil Collection.

This trip will involve one or more short hikes of about 1/3 of a mile each way, on fairly flat terrain (grassland, fields, etc). It will not have much vertical movement up or down.

Prices & booking (added May 1st 2019)

$50 for 1 day, including a seat on the tour bus (return trip from/to Dickinson), and one bagged lunch. Limit of 30 persons.
Judith River & Hell Creek Formations

Tuesday & Wednesday 17-18th September

During the Late Cretaceous, northern Montana was a vast floodplain with deltas and coal swamps reaching out into the shallow seaway that covered the Dakotas and what became the central United States. The Judith River (~79-76 Ma) and Hell Creek (~67-66 Ma) formations of Montana represent terrestrial deposition during this time, and we will spend a day in each of these units investigating the paleontology and geology.

Edge of the Wedge - Since 2016, Badlands Dinosaur Museum has been conducting fieldwork in the Judith River Formation of Valley County, Montana. This fieldtrip will visit some of the museum's current fossil sites and investigate the atypical geology of this easternmost exposure of the Judith River Wedge.

Highway to Hell (Creek) - Near the town of Jordan, we will visit exposures of the Hell Creek Formation described in Fowler (2016, dissertation). This will include visiting Hell Creek itself to see the basal contacts (including a possible remnant of the Battle Formation), and the K-Pg boundary at the upper formational contact. We will also hopefully be able to access exposures of the Null Coal, which although poorly known has yielded the only radiometric date from within the Hell Creek Formation (Sprain et al., 2014), affording important insight into its duration.

Fossils collected during the trip will be reposited at Badlands Dinosaur Museum.

Tentative schedule & itinerary

Day 1: Drive from Dickinson ND, to Jordan MT (~3.5hrs) and visit Hell Creek exposures at Hell Creek itself (mostly roadside), lunch in Jordan (Garfield County), then visits to more exposures to the east: "up the Haxby Road", and in Bug Creek (McCone County) in the afternoon. We will then drive to Glasgow, MT, staying overnight there. Day 1 will therefore be a mix of roadside stops and short hikes of 0.5-1 mile round trips. Hikes will involve walking over difficult terrain.

Day 2: Visit exposures of the Judith River Fm west of Glasgow. This will mostly be conducted
over two stops, with the first stop being a ~1 mile / 1 hour hike, followed by a ~3-4 mile / 2-3 hrs hike at the second stop. Terrain can be very rough and in one or two places will be steep, although it is generally quite agreeable (at least as much as is typical for badlands exposures) with acceptable cow-trails to follow. We will return to Dickinson in the evening (~4.5hrs drive).

Prices & booking (added April 23rd 2019)

There are two ways to partake in this field trip:

"Full service"
$140 for 2 days, including an overnight stay in Glasgow MT (double occupancy), a seat on the tour bus (return trip from/to Dickinson), and two bagged lunches. Limit of 23 persons.

"Basic: Self-driving /catering / hotel"
$25. Attendee is expected to drive in their own vehicle and make their own hotel & lunch arrangements.

We are expecting this field trip to be well-attended, and we will endeavor to facilitate matching up "basic" self-drivers with additional passengers.

Hell Creek And K-pg Boundary Of North Dakota

Monday 16th Sept (information added May 1st 2019)

One of the best places in the world to study environmental and faunal changes across the Cretaceous-Paleogene (K/Pg) boundary is in southwestern North Dakota, and many published studies utilized data collected from this area. This field trip will visit several important paleontological sites both immediately below and above the boundary, as well as areas with good exposures of the K/Pg tonstein, providing participants with a chance to learn about the current state of knowledge regarding this mass extinction event. Locations will range from the classic Mud Buttes area up through the area surrounding Marmarth, North Dakota. The trip will depart from and return to Dickinson, North Dakota.
Any fossils collected during the field trip will go to the North Dakota State Fossil Collection.

This trip will involve one or more short hikes of about 1/3 of a mile each way, on fairly flat terrain (grassland, fields, etc). It will not have much vertical movement up or down.

**Prices & booking**

$50 for 1 day, including a seat on the tour bus (return trip from/to Dickinson), and one bagged lunch. Limit of 53 persons.

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**Free Public Event : "Dino Chat"**

Meet with our panel of paleontology experts, learn a little about their research, and fire away with any questions you have about dinosaurs, fossils... who knows where the discussion will take us?

Saturday 14th September, 4-6pm at Dickinson State University Campus, Dept. Natural Sciences, Murphy Hall, Rm 117. Refreshments provided. Free entry. Appropriate for all ages.

Sponsored by DSU Dept. Natural Sciences; Badlands Dinosaur Museum, Dickinson Museum Center; North Dakota Geological Survey, and Dickinson Conventions and Visitors Bureau.
Have questions about dinosaurs or fossils?

Meet with our panel of experts and learn about new discoveries. Part of the “Cretaceous and Beyond” research symposium.

4-6pm, Saturday 14th September
DSU Dept. Natural Sciences, Murphy Hall Rm 117

FREE entry - Refreshments provided