

APPLICATION: EXPORT PERMIT FOR COUNCIL FOR GEOSCIENCE

Description of Material: CGS-R300

Specimen R300 consists of partial skull and low jaw material, as well as disarticulated postcrania (including vertebrae, shoulder girdle and part of a humerus) that is assigned to the therocephalian genus *Theriognathus* (see Figure 1). This specimen lacks locality data as well as some important diagnostic anatomical information. Preparation of the material is well advanced with little matrix covering the reasonably well preserved bone material.



Figure 1: All the fossil material assigned to specimen CGS-R300. Mr Huttenlocker only wants to borrow the encircled material. Each scale bar block = 1cm.

Reason for Export:

The CGS was approached by Mr. A. Huttenlocker of the Department of Biology, University of Washington to loan a bone fragment that forms part of specimen CGS-R300, for a histological investigation. This is a time-intensive procedure that requires the use of specialised equipment and it cannot be done at the CGS facilities. Mr.

Huttenlocker therefore requested to loan the sample in order to conduct histological preparation and study at the facilities of the University of Washington.



Figure 2: Anterior view of the scapula and humerus fragment of CGS-R300 that forms part of the loan request.



Figure 3: Medial view of the scapula of CGS-R300 that forms part of the loan request.

Motivation:

Theriognathus is a fairly well-known and well-represented theriocephalian genus, although its histology is poorly known. This specimen is one of five specimens currently assigned to this genus in the CGS fossil collection. This specimen contains very little cranial material and largely consists of fragmentary, postcranial material. Unfortunately this specimen lacks important locality data.

This loan application is only for the scapula and a humerus fragment belonging to specimen CGS-R3000. Mr. Huttenlocker proposed to make use of an existing fracture that has been glued, to free up a small fragment of the humerus. A cast will be prepared of the loose fragment after which a histological section will be made at the free-end of the loose humerus fragment (see Figure 4). This approach will greatly limit the amount of damage to the specimen.

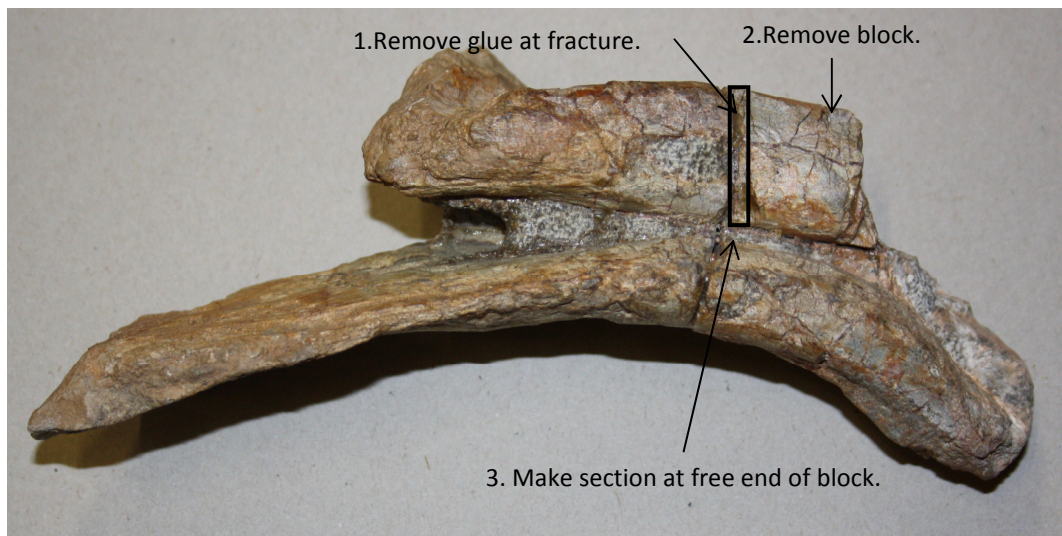


Figure 4: The proposed position of the histological section on the humerus fragment of specimen CGS-R300.

Mr. Huttenlocker is a PhD student at the Department of Biology, University of Washington, researching growth patterns in theriocephalians that span the Permian-Triassic boundary. Given the fact that there are several specimens of this genus known to the palaeontological community, the fragmentary nature of this specimen, the fact that the damage to the specimen will be very limited (to a small part of an incompletely preserved humerus) and the scientific value of Mr. Huttenlocker's research, we are comfortable with the proposed histological investigation on this specimen.

Mr. Huttenlocker is a regular visitor to South Africa (this is his fifth visit) and is well known to the South African palaeontological community. He is collaborating with some

South African researchers (Dr, Abdala at the BPI) and also previously loaned material from the Iziko Museum (which he has already returned).

In addition his Ph.D. supervisor, Dr. C. Sidor (who co-signed the loan form) has a long relationship with the South African palaeontology community, having visited and collaborated with numerous South Africa institutions and researchers since 1997. His work and integrity is highly regarded in South Africa and we are confident that we will get the material back in time and in good condition.

If the application is approved, the specimen will be carried by hand by Mr. Huttenlocker to the University of Washington, where histological sectioning and investigation will be conducted.

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