

## ACQUISITIONS STRATEGY University of Alberta Parasite Collection

---

### A. COLLECTIONS AND PROGRAMS

#### 1. Describe the purpose of the Collection and why it is maintained by the unit

##### 1.1 Focus

The University of Alberta Parasite Collection (the “UAPC”) is maintained by the Department of Biological Sciences (“DBS”). It specializes in:

- Parasites classed as “helminths” (Platyhelminthes, Nematoda, Acanthocephala) but including also material from the Protozoa and Arthropoda and other minor parasitic taxa.
- Parasites of wild animal hosts from a broad range of host taxa in western Canada, but including also material from specific studies done by U of A researchers on hosts from other parts of the world.

##### 1.2 Research and teaching support

The UAPC supports research and teaching in the following ways:

- As a repository for undergraduate and graduate thesis collections.
- As a repository for voucher specimens from published research, including type materials.
- As a reference collection to assist researchers in the morphological identification of parasites.
- As a source of properly-identified material suitable for testing by modern molecular techniques.
- As a collection documenting the history of field parasitological research done by researchers affiliated with the DBS.
- As a teaching collection to support undergraduate and graduate teaching within DBS.
- As a source of display material for on- and off-campus outreach activities, including tours and exhibits.

##### 1.3 History

The UAPC was established in about 1960 by Dr. John Carl Holmes, of the former Department of Zoology, with material largely from his own personal collection. The collection grew steadily with the addition of material collected by Dr. Holmes and his students, and starting in about 1969 with additional material from Dr. William Samuel and his students. Some material had been received by the UAPC over the years from orphaned collections or from specimen exchanges with researchers around the world. The UAPC currently contains over 11,500 accessioned lots of specimens including over 75 type or paratype specimens. These lots contain about 1200 different species of parasites, from about 500 species of hosts. The oldest specimens in the collection date to the 1930s. The UAPC contains many parasites from host species that may have been common at the time of collection, but are now threatened or endangered and consequently would be difficult to obtain current samples.



## 2. Type of Material in Current Collection

Material	# of accessioned	# to be accessioned	# pending decision
Type and Voucher Material: specimens of parasitic helminths (“worms”) from western Canada and beyond which serve as reference material to assist in the identification of unknown material	72 lots type; vouchers incl. under “research specimens”	0	0
Research Specimens: high-quality, well documented, parasitic helminths (“worms”) from wildlife of western Canada that represent the variation in parasites that may occur among species of hosts, geographic locales, or over time, and which serve as reference material to assist in the identification of unknown material. Material preserved in vials or mounted on glass slides.	11,500 lots <sup>1</sup>	See Note	See Note
Teaching Material: high quality specimens of helminths, arthropods and protozoa that reflect the diversity of parasitic organisms.	3500 glass-mounted 100 wet specimens	See Note	See Note
Display Material: high quality specimens of parasites of any type that provide high-impact, visual material for use in teaching and in on- and off-campus displays.	10	80	See Note
Exchange Material: parasite material that duplicates holdings already in the UAPC, retained for use under Museums and Collections policies to obtain specimens that complement research and teaching priorities of the UAPC, or to assist other organizations in fulfilling their teaching or research mandates.	0	See Note	See Note
Total			

Note: About 10,000 glass-mounted specimens and many thousand vials of wet-preserved specimens are currently not accessioned and await a decision on their disposition to research, teaching, exchange or disposal.

<sup>1</sup> Each lot may contain from one to several hundred (occasionally more) individual parasites.



### 3. List the academic programs supported by the Collection

#### 3.1 Undergraduate program:

- ZOO 250 (Survey of the Invertebrates, ca. 140 students): The UAPC occasionally provides display material for laboratories, typically unusual material that is not available from biological supply houses.
- ZOO 352 (Principles of Parasitism, ca. 100 students): The UAPC is instrumental in providing material for photography of specimens used in the web-based laboratory and for laboratory exams.
- ZOO 354 (Wildlife Disease, ca. 20 students): Students examine glass-mounted and wet preserved specimens during 4 laboratory sessions. Some years, depending on host availability, students collect and prepare parasite specimens that may be added to the UAPC if of sufficient quality and/or rarity.
- ZOO 452 (Experimental Parasitology, ca. 10 students): The UAPC provides mounted specimens as demonstration material for species used in experiments.
- BIOL 498, 499 (Research Project, sporadic numbers): The UAPC is used by students doing projects of a taxonomic or survey nature to provide reference material for identification. Occasionally these projects produce specimens of sufficient quality and/or rarity that are added to the collection.

#### 3.2 Graduate program:

- ZOO 552 (Advanced Parasitology, sporadic numbers): The UAPC is used by students doing projects of a taxonomic or survey nature to provide reference material for identification. Occasionally these projects produce specimens of sufficient quality and/or rarity that are added to the collection.
- THESIS Research (sporadic, averaging ca. 1 per year): Graduate students doing research in Ecology, Evolution or Systematics on projects that involve parasites make use of the UAPC to provide reference material for identification. The projects are encouraged to deposit voucher specimens with the UAPC or with another museum.

#### 3.3 Research:

There are few researchers based at the U of A currently doing collections-based research on parasites. The UAPC is used for research purposes primarily by researchers locally and around the world who access its specimens for identification or taxonomic research they are conducting. Normally these activities do not result in substantial growth of the UAPC.



#### 4. List community engagement programs/activities supported by the Collection

##### 4.1 Current/continuing programs:

- On campus displays: Material from the teaching collection, and occasionally the research collection, is put on display at the annual University Open House. This activity serves DBS as a recruitment aid.
- Off campus displays: Material from the teaching collection may be lent on request as display material for presentations to the public. This activity serves the University mission of community involvement.
- Tours: Public tours of the UAPC are conducted on request. The UAPC is not in a facility designed for exhibition, so these tours are not advertized and requests usually arise from word of mouth. This activity serves the University mission of community involvement.
- Identification services: Personnel from the UAPC are frequently approached by members of the public, usually hunters or fishers, or pet owners, to provide identification or information on suspected parasites. Material from the UAPC, which is usually in far better condition than the material brought in, is used to educate the person on their query. This activity serves the University mission of community involvement.
- Exchange or transfer: The UAPC occasionally participates in the exchange or transfer of parasite specimens with/to other institutions. Material selected for exchange or transfer is almost exclusively material that has not yet been accessioned into the UAPC because it is already well represented in the UAPC, or lacks sufficient accompanying data to render it useful scientifically. This activity recognizes the declining offerings in parasitology in many educational institutions, particularly smaller ones, and the difficulty of establishing new teaching collections for new staff wishing to make such offerings. This activity serves the University mission of “uplifting the whole people”.

##### 4.2 New programs:

- The UAPC is currently in a period of physical reorganization. Once this is completed (likely in about 5 years), formal tours will be advertized and offered. This activity will serve the University mission of community involvement.



## B. STRATEGY AND CRITERIA FOR NEW ACQUISITIONS

### 1. Identify the types of new acquisitions that are essential to support the current and proposed programs identified above

UAPC will consider acquiring:

- Parasitic Helminths from Western Canada and Beyond as Voucher, Type, Research, Teaching, Display or Exchange material
- Arthropods as Teaching and Display material
- Protozoa as Teaching and Display material
- Any other type of parasites as Teaching and Display material

#### 1.1 Limitations and Documentation

- Type & Voucher: **primary type material** (e.g. holotypes, neotypes) and **secondary type material** (e.g. paratypes) from any location/ **voucher material** from studies that include hosts from western Canada, and which are intended to be referenced specifically by an accession number as voucher specimens in a thesis or publication.
  - **Limitations:** Material requiring accessioning by the UAPC for a pending publication will only be accepted if specimens can be processed, and accession numbers provided to the contributor, in a timely manner for publication.
  - **Documentation:** A pre-print or reprint of the published article describing the species should be included with the submission or supplied promptly upon availability.
- **Research Quality Specimens from Western Canada:** Specimens may be from any wildlife host.
  - **Limitations:** Acquisitions for any one species of parasite will be limited to samples from a maximum of five host individuals in any one geographic area and sampling time. Each sample should comprise at least one identified reference specimen, and if possible an accompanying preserved sample containing a sufficient number of individual parasites to allow for destructive sampling. **Preference will be given to** collections for which parallel sets of specimens are available (one prepared and identified using traditional techniques, the other preserved chemically in a manner to promote integrity of DNA or other molecular markers). Properly identified specimens prepared by only one of the above methods are considered if they fill in gaps in existing UAPC holdings.
  - **Documentation:** Each acquisition must be accompanied by preservation and storage method and history.
- **Teaching Material:** Specimens must be in good condition and represent species which are not already represented in the UAPC teaching collection in sufficient numbers for classroom needs. Specimens should normally be prepared as glass mounts, but wet material may be considered if it fills a significant gap in the UAPC teaching collection.
  - **Limitations:** No more than 50 specimens from any one species will normally be accepted because of storage space limitations.
- **Display Material:** preserved specimens of parasites, or preserved hosts or organs containing parasites and the pathology that they cause, that are large enough to be readily visible to the naked eye.
  - **Limitations:** No more than two jars of specimens from any one display theme will be accepted because of storage space limitations.
- **Exchange Material:** material with limited data associated with it will be considered as “exchange



material” on a case-by-case basis.

## 1.2 General acquisition criteria

- The UAPC recognizes that acquisition of parasites requires, by definition, their collection from host animals, and in most cases that requires killing the host and performing a lengthy (and often expensive) process of examination, collection and processing of parasites found in or on the host. Acquisition of existing specimens and ongoing maintenance at low cost might prevent the need to reacquire the same types of specimens through new collections in the future (if those collections would even be allowed today).
- The UAPC recognizes that parasites of the same species are known to vary geographically, among different species of hosts, and often among individuals of the same host species collected at the same time and place. Therefore, what might appear superficially to represent duplicate samples may indeed be sampling different relevant biological subsets of parasites.

## 1.3 Preference and priority

Preference and priority will be given to material that best satisfies certain preservation, storage and data criteria, to minimize handling and materials costs to the UAPC:

- Platyhelminthes, Acanthocephala and Arthropoda should be prepared as permanent mounts on 25x75 mm glass slides, preferably mounted in Canada balsam. Nematoda should be in vials containing 70% ethanol supplemented with 5-10% glycerin.
- Material stored wet should be reasonably free of toxic materials such as formalin or phenol, and should ideally be in screw-top 21x70 mm (4 dram) vials to conform with the UAPC storage system (larger containers may be submitted for over-sized specimens).
- All data should be affixed to the specimen or supplied on a separate attachment, preferably in an electronic format such as a spreadsheet.
- Each acquisition must be accompanied by data indicating the name of the parasite and host, date and geographic locale of collection. Supplementary host data (necropsy number, sex, size, age, etc.) should be included where available.
- Acquisitions can be via field collection, donation, transfer, exchange or purchase.

Material is accepted on the understanding that hosts were collected under any permits that were required at the time. Copies of the permits or permit numbers should be supplied if available but are not required.

## 2. List any existing collecting area that will no longer be supplemented

The UAPC plans to maintain and grow its collections in the existing priority areas.

## 3. List any additional requirements unique to the Collection that would affect a decision to acquire

The UAPC is a repository primarily for glass-mounted specimens and wet specimens stored in preservatives such as ethanol. These are quite typical contents of any natural history collection and do not pose any unique requirements.



**Approved by Unit/Department/Faculty**

ALLEN SHOSTAK

Designated Curator (Print Name)

Michael Caldwell

Chair/Dean/Director (Print Name)

December 7, 2010

Date Completed

Allen Shostak

(Signature)

[Signature]

(Signature)

**Approved by Museums and Collections Services**

[Signature]  
Janine Andrews, Executive Director

7 Dec/2010

Date

**Approved by UofA Museums Policy and Planning Committee**

Heather Proctor

Chair, Policy and Planning Committee (Print Name)

[Signature]  
Signature

7 Dec 2010

Date of Committee Meeting

15 DECEMBER 2015

Date of Next Review

