

Working Title		Name	
Forensic Biologist			
Position Number	Reports to Position No., Class & Level	Division, Branch/Unit	Ministry
Present Class	Program Code	Requested Class	
Dept ID	Project Code (if applicable)		

PURPOSE: Give a brief summary of the job, covering the main responsibilities, the framework within which the job has to operate and the main contribution to the organization (see Non-Management Job Description Writing Guide [Pages 7-8](#)).

Reporting to the Forensic Unit Manager, the forensic biologist position is responsible for providing forensic support to enforcement officers and research support to non-enforcement personnel. In support of enforcement-oriented investigations, this position performs forensic analysis on evidence, prepares court documents, gives expert testimony, aids in evidence collection and performs forensic research. This position also supports enforcement officers by providing training to officers in the proper methods of collection and submission of evidence. The forensic biologist maintains the Alberta Fish and Wildlife Enforcement Branch (branch) forensic lab in a ready and operational state by ordering supplies, maintaining equipment and performing quality assurance tests according to the relevant standards. This position may also perform research and/or analysis in support of non-enforcement activities such as applied management research or academic research. The forensic biologist may also assist on Rural Alberta Provincial Integrated Defense (RAPID) Force files as requested by the provincial police.

RESPONSIBILITIES AND ACTIVITIES: The purpose of the job can be broken down in different responsibilities and end results. Each end result shows what the job is accountable for, within what framework and what the added value is. Normally a job has 4-8 core end results. For each end result, approximately 3-6 activities should be described (see Writing Guide [Pages 9-10](#)).

1. Perform Forensic Casework

- Complete laboratory analyses to approved standards and in a manner which is acceptable to the courts.
- Complete documentation of the continuity and handling of evidence as well as the documentation of all test results.
- DNA analysis includes:
 - o searching evidence for biological material for forensic analysis
 - o extraction of DNA from evidence
 - o PCR amplification of the extracted DNA
 - o analysis of amplified DNA by capillary electrophoresis using a Generic Analyzer
 - o use of appropriate software for genetic analysis
 - o proper assessment of genetic profiles that constitute matches, exclusions and other relevant forensic conclusions
 - o use of software to calculate random-match probabilities, likelihood ratios and other forensics statistics
 - o production of case files
- Determination of cause of death is provided through post mortem examination and chemical testing of samples taken from animal carcasses.
- Perform morphological examination of evidence to determine species, sex or other characteristics of evidence
- As required, above casework may apply to RAPID Force investigations if requested by the provincial police.

2. Forensic case management

- Evidence management, maintain continuity, preserve and securely store evidence submitted to the lab.

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- Assist in the execution of search warrants. Collect evidence at crime scenes, from residences or from seized property. Secure, document, identify and preserve the evidence for lab analysis.
- Make certain that evidence is handled in a manner that ensures the evidence submitted to the lab for analysis is kept secured so as to protect the continuity of the evidence and that the handling and storage of the evidence is documented in a court acceptable fashion.
- Assess case submissions and, if necessary, confer with the investigator to determine that the type of analysis requested is appropriate for the investigation.
- Provide advice to officers in the field on matters such as collection and packaging of evidence.
- Prepare lab reports and documents for inclusion in court briefs for the investigating officer and the crown prosecutor. Respond to any inquiries from the crown prosecutor, investigating officer and defense counsel.
- Appear as an expert witness to present lab evidence at trial. Communicate complex scientific principles to non-scientists in provincial court and other venues.

3. Lab Operations

- Maintain the lab and equipment in an operational state as required by the applicable standards.
- Source and order lab supplies and equipment as required.
- Provide independent reviews of case files from other Forensic Unit personnel.
- Participate in the laboratory quality management system and other accreditation related activities.

4. Research

- Participate in the development and validation of forensic tests and analysis of new databases as required.
- Participate in the evaluation of new methods.
- Participate in other research projects as required. These may include non-forensic projects aimed and fish and wildlife management.

SCOPE: List specific information that illustrates the challenges, problem solving and creativity requirements and decision making capacity of the position. Also identify the internal or external areas the job impacts (see Writing Guide [Pages 11-12](#)).

The forensic biologist is responsible for handling fisheries and wildlife forensic casework for the Province of Alberta. From time to time and on request from police agencies, this position may be asked to perform duties associated with criminal files. The Forensic Unit accepts cases from agencies from other provinces and territories in Canada according to established agreements or MOUs. The forensic biologist performs a wide variety of forensic analyses. Additionally, the forensic biologist also participates in the execution of search warrants, identification of animals for problem wildlife situations, fisheries and wildlife research projects and the training of Fish and Wildlife officers. Fish and Wildlife officers are the clients most directly affected by the work of the forensic biologist. Outside of the department, other enforcement agencies, the judicial system, the general public and in particular, resource violators are impacted by this position. Convictions of resource violators may result in incarceration, significant fines and court ordered prohibitions.

Forensic DNA analysis is a very effective technique that provides investigators with crucial information regarding identification of species and often provides a direct link from a suspect to an offence. DNA evidence is often the key piece of evidence in court cases. Therefore, the work performed by the forensic biologist has a significant effect on the outcome of trials. Because DNA evidence carries a great deal of influence in trials, there is also serious consequences associated with laboratory error. The forensic biologist position assumes significant responsibility. These conditions make it essential that the forensic biologist maintains a very high level of care and attention during the completion of complex analytical procedures and the handling of evidence. These high standards need to be maintained to withstand scrutiny from defence counsel, judges and the public.

The forensic biologist is responsible and accountable for knowledge of and adherence to all of the standards and procedures associated with each lab activity as identified by the Forensic Unit.

This position also supports research into the development of new forensic tests and databases in Alberta, as well as other

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provinces by the validation of test protocols and the analysis of genetic databases from wildlife populations. The forensic biologist plays an important role in providing forensic training to Fish and Wildlife officers from Alberta and other jurisdictions through participation in the Western Conservation Law Enforcement Academy (WCLEA). In addition to the enforcement duties, research projects conducted by this position may effect the management of fish and wildlife in Alberta and other western provinces.

KNOWLEDGE, SKILLS & ABILITIES: Include information on required diplomas and degrees along with identifying the most important knowledge factors, including knowledge about practical procedures, administrative, technical or professional techniques, technical, scientific or program related processes, etc. Detail specific training if there is an occupational certification/registration requirement for the position. Specify the type of experience required for the position (see Writing Guide **Pages 12-14**).

Education and training

The Forensic Biologist requires a minimum of a BSc. with specialization in molecular biology and genetics. Course work in forensic science is an asset.

Practical forensic skills that are required by the forensic biologist include

- Experience in forensic casework
- Exhibit handling
- Use of continuity
- Exhibit searching for biological substances
- Physical matching
- Hair identification
- Autopsy/cause of death
- Use of forensic population statistics
- Presentation of expert testimony in court
- Forensic case management
- Forensic photography.

Practical knowledge of the morphology of fish and wildlife species is required by the forensic biologist. This knowledge includes an extensive knowledge of the external appearance and internal structure of all game species for the use of species identifications and for performing post-mortem examinations.

The forensic biologist requires **specialized technical skills** including proficiency in:

- Automated DNA extraction platforms
- Polymerase Chain Reaction
- Capillary electrophoresis
- Immunodiffusion
- Iso-electric Focusing.

Organizational Skills

The forensic biologist requires excellent organizational skills for case management. These management skills are required to assess and coordinate evidence from large, complex investigations. These investigations frequently involve multiple suspects, multiple victims and multiple crime scenes. This position must communicate with the investigator to ensure that the submitted evidence meets court standards and that the appropriate analysis is performed. Furthermore, the forensic biologist may also be required to provide information from the analysis in a timely fashion in order to further the investigation. In addition to casework responsibilities, this position must also balance responsibilities for quality management, lab maintenance and professional development.

Communication

The forensic biologist position requires excellent written and oral communication skills. This position is responsible for producing lab reports, can say statements, court briefs, affidavits and other documents. These documents require that the results from complex investigations and analyses be presented in clear, concise language that is accessible to a non-scientific audience. The forensic biologist must be adept at oral communication to function properly in their role as:

- expert witness
- training instructor
- forensic advisor to investigators

In the role of expert witness the forensic biologist must communicate complex analytical results in clear language and answer questions from the crown, defence counsel and the judge in a highly charged and pressure-filled environment. As a trainer of Fish and Wildlife officers, the forensic biologist must excel as a public speaker to deliver the forensic section of the training course. While training officers, the forensic biologist must also be an active listener to obtain important feedback from the trainees in order to assess and improve the delivery of the training material. As a forensic advisor the forensic biologist must handle questions from the field that cover diverse and often novel situations. The forensic biologist must assess these situations and offer advice that maximizes the investigator's probability of success while ensuring that proper standards are maintained.

Other

The forensic biologist is appointed as a fishery officer and wildlife officer for the execution of duties required for this role. An enhanced security clearance is required for the position.

CONTACTS: Identify the main contacts the position communicates with and the purpose of the communication (See Writing Guide Pages 14-15).

- Fish and Wildlife officers are the main contact of the forensic biologist position. Fish and Wildlife officers submit the majority of casework to the unit and the forensic biologist receives the evidence, confers with and advises the officers and then provides court documents and expert witness testimony.
- Staff, including senior managers as required, throughout the branch for the purpose of providing advice and direction on forensic matters.
- Alberta Justice prosecutors and support staff, Justice Canada prosecutors and support staff. To provide forensic service, advice and expert witness testimony.
- Media, for the purpose of public education.
- Other Alberta government staff and federal government staff as necessary. To provide forensic service or advice.

SUPERVISION EXERCISED: List position numbers, class titles, and working titles of positions directly supervised (see Writing Guide Page 15)

Wage or temporary staff as required.

CHANGES SINCE LAST CLASSIFICATION REVIEW: Identify significant changes that have impacted the responsibilities assigned to your position since the last review (see Writing Guide Pages 15-16).

Changes to incorporate additional responsibilities mandated by RAPID Force as outlined.

ORGANIZATION CHART: An organization chart that includes supervisor, peers and staff **MUST** be attached (see Writing Guide Page 17).

This information is being collected under the authority of Section 10 of the Public Service Act and will be used to allocate positions within a classification plan and to manage the Alberta government human resources program. If you have any questions about the collection of this information, contact the Job Evaluation Unit, 6th Floor, Peace Hills Trust Tower, 10011 - 109 Street, Edmonton, Alberta, T5J 3S8, phone 780/408-8400 or contact your Ministry Human Resource Office.