Scientific – Subsidiary 2

APS Benchmark Listings

Sub.	Bench-mark No.	Department	Working Title Job Title	Know-How				Creativity/ Problem Solving		Responsibility		Total Points
				Prof./ Cont.	Comp. Div.	H.R. Skills	Points	%	Points	Profile	Points	
Scientific 5 (Point Range 614 - 734)												
002	027SC02	Agriculture & Forestry	Senior Biometrician	G	I	2	350	50	175	C2	132	**657**
002	027SC03	Agriculture & Forestry	Research Scientist – Val ue Added Meat Processing	G	I	2	350	50	175	C2	132	**657**
Scientific 4 (Point Range 519 - 613)												
002	026SC05	Agriculture & Forestry	Forest Mgmt Specialist	F+	I	2	304	43	132	C2	100	**536**
002	026SC04	Environment	Senior Water Quality Modeler	F+	I	2	304	43	132	C2	100	**536**
Scientific 3 (Point Range 439 - 518)												
002	025SC09	Agriculture & Forestry	Food Scientist, Crops/Bakery	F	I	2	264	43	115	C2	87	**466**
002	025SC06	Culture & Tourism	Senior Museum Scientist	F	I	2	264	38	100	B	100	**464**
002	025SC10	Agriculture & Forestry	Veterinary Microbiology Scientist	F	I	2	264	38	100	B	100	**464**

Back to top

Scientific 2 (Point Range 371 - 438)												
002	024SC08	Culture & Tourism	Curator of Quaternary Paleontology	E+	I	2	230	38	87	B	87	**404**
002	024SC13	Agriculture & Forestry	Laboratory Scientist - Molecular Biology	F	I	1	230	38	87	C1	76	**393**
Scientific 1 (Point Range 314 - 370)												
002	023SC12	Agriculture & Forestry	Provincial Seed Specialist	E	I	2	200	29	57	B	57	**314**

Last Review / Update: 2016-03-11

Back to top

Subsidiary 2
Benchmark Evaluation - 027SC02

Identification Section

Working Title: Senior Biometrician

Department: Agriculture and Forestry

Division, Branch/Unit: Forestry Division, Forest Management Branch, Resource Analysis Section

Reports To: Manager, Forest Biometrics Unit

Levels to D.M.: 5

Job Description: 027SC02

MRS: See the Minimum Recruitment Standards for Scientific

Job Code: 027SC - Scientific 5

Organization Chart
(requires login)

Evaluation

Knowledge
GI2 350

Creativity/Problem Solving
50% 175

Responsibility
C2 132

TOTAL JOB POINTS
657

Comments on Role

Back to top

This senior scientific position develops, leads, and sets standards for a provincial research and application program for quantifying forest productivity in Alberta. Development of scientifically-based growth-and-yield models is one of the core components of sustainable forest management. The position is involved in formulating an overall provincial-level forest productivity research program that supports Departmental goals and strategies outlined in the Business Plan, identifying research needs and priorities, establishing province-wide research programs in related areas, designing and coordinating data collection and data analysis protocols, conducting research projects through extensive collaboration and coordination with other agencies, carrying out scientific assessments of research results, and developing new forest productivity and growth-and-yield models for major Alberta tree species and cover types. This position reviews scientific papers for journals, publishes research findings in peer-reviewed scientific journals, and provides advice and recommendations to internal and external clients on matters related to forest productivity, growth and yield, alternative reforestation standards, statistics and modeling techniques.

Comments on Evaluation

- **Knowledge:**
  Content:

  - **G:** This position reflects the most advanced level of scientific work for experienced research staff, demonstrating outstanding personal scientific achievement with wide experience in research project coordination and is consulted as a scientific leader in the field – provincially, nationally, and internationally. Position requires a PhD in Quantitative Forest Management and Biometrics, specializing in forest productivity, stand dynamics, and modeling of the growth and yield of natural and regenerated stands. The position requires expert knowledge of computer modeling, ecological principles, and tree forestry/silviculture/regeneration in addition to: advanced level of knowledge of scientific principles, mathematics/statistics, and abilities in identifying research needs, developing hypotheses, designing complex research projects, and coordinating/managing large multi-disciplinary research projects. Other jurisdictions and forest management companies either modify or model Alberta's Forest management plans created based on position's computer model (GYPSY). The expert knowledge requirements support evaluating the position at the full G level.

Complexity and Diversity:

- **I:** This position has significant relevance to the recovery and maintenance of healthy sustainable forests, which impact the forest industry, provincial/national/international research organizations, and resource users. The Senior Biometrician provides leadership to private and public interdisciplinary research teams within and outside the province, in addition to divisional staff on a regular basis.

Back to top

Human Relations Skills:

- **2:** Position requires strong communication skills, leading and directing multidisciplinary research teams, in addition to managing a small unit of professional staff within the unit. This position influences policy makers, regulators, and researchers through the technology transfer component of the work. Significant contact with other scientists, researchers, and forestry divisions and staff is an ongoing component of the work. Position does not face intense conflict or emotional situations as described at the 3 level of this sub-factor.

- **Creativity/Problem Solving:**

50%: Both problems and solutions need to be identified in research projects that are lead and directed by this position. Problems have strategic implications (related to sustainability of our forestry resources) and a strong research and development focus. Position develops research projects based on the departmental and divisional business plan, the division's strategic plans, and in response to problems that arise in the field (Mountain Pine Beetle, drought, etc.). This position performs highly complex applied research and analyses, seeking solutions to complex analytical and technical challenges related to quantifying forest productivity in Alberta. Thinking is guided by few precedents.

- **Responsibility:**

C2: Position focus is on conducting applied research and coordinating/leading/directing applied research projects which are multi-disciplinary and long term.

Last Reviewed: November, 2009

Alberta Government

Last Review / Update: 2016-03-11

Back to top

Alberta

Subsidiary 2 Benchmark
Job Description - 027SC02

Identification Section

Working Title: Senior Biometrician

Department: Agriculture and Forestry

Division, Branch/Unit: Forestry Division, Forest Management Branch, Resource Analysis Section

Reports To: Manager, Forest Biometrics Unit

Levels to D.M.: 5

Purpose

(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.)

The main duties of this senior scientific position are to develop, lead and set standards for a provincial research and application program for quantifying forest productivity in Alberta. Development of scientifically-based growth-and-yield models is one of the core components of sustainable forest management. The position involves formulating an overall, provincial-level forest productivity research program that supports Departmental goals and strategies outlined in the business plan, identifying research needs and priorities, establishing province-wide research programs in related areas, designing and coordinating data collection and data analysis protocols, conducting research projects through extensive collaboration and coordination with other agencies including the forest industry, carrying out scientific assessments of

Back to top

research results, and developing new forest productivity and growth-and-yield models for major Alberta tree species and cover types. The position also involves reviewing scientific papers for journals, publishing research findings in peer-reviewed scientific journals and disseminating findings for use by forest practitioners, mentoring junior scientists, staff and PhD level students, and providing advice and recommendations to internal and external clients on matters related to forest productivity, growth-and-yield, alternative reforestation standards, statistics and modeling techniques.

Research covers a wide range of forest conditions vital to the sustainability of Alberta's forests and forest industry. Research activities are innovative, multidisciplinary and ground breaking in many ways. They address issues at a variety of levels ranging in scale from provincial, to forest management unit, to stand, to individual trees, with consideration for stand density management regimes, ecoregions and ecosystems, management plans and policies, economics and climate change. Extensive field data collection and testing are required. The research programs involve large and small forestry companies, federal and provincial researchers and forestry consultants, as well as academics and international collaborators resulting in the development of science-based forest productivity and growth-and-yield models capable of forecasting how trees grow under various conditions and management strategies for Alberta's forests. Model estimates are used to establish timber harvest levels and to assess the sustainability of Alberta's forests. Advice, consultation and direction are provided on province-wide research needs and priorities, as well as on the development and execution of interdisciplinary research projects involving multiple stakeholders. Advice, consultation and direction are also frequently provided to forest practitioners, consultants and researchers in other jurisdictions and research institutions at national and international levels and the Senior Biometrician is an internationally recognized expert in the fields of forest productivity and modelling.

Responsibilities and Activities

(Each end-result/responsibility shows what the job is accountable for, within what framework and what the added value is.)

1. **Establish and develop province-wide research and application programs in the areas of forest productivity and growth-and-yield modelling for sustainable forest management, and for integrating silvicultural practices and regulatory requirements and policies into forest operations. Conduct extensive research to ensure the programs are based on sound scientific principles and are aligned with Departmental goals and strategies outlined in the business plan. Support the forestry sector by providing increased research capacity and scientific knowledge required to expand opportunities to benefit Albertans.**

Back to top

Activities:

Assess research needs, identify new research opportunities and challenges, identify research priorities and areas for focus, formulate research hypotheses, and design data collection procedures, standards and analytical protocols aimed at finding reasonable solutions that are realistic, practical, expeditious and scientifically defendable.
Initiate research activities and develop contacts involving forest industry groups/consortiums, associations, universities, research institutions and other levels of government. Pursue research opportunities and seek funding to maintain, expand and enhance provincial research programs in forest productivity and growth-and-yield modelling.
Formulate scientific strategies to address and respond to emerging concerns, issues and challenges.
Develop multidisciplinary research programs that may involve local, national and international researchers. Maintain strategic partnerships nationally and internationally with government, university and private industry in building research programs and advancing scientific collaborations among various stakeholders. Act as the lead scientist and project manager for research projects.
Utilize scientific knowledge and organizational skills to coordinate and guide the development of research teams and projects, determine the best research approach based on comprehensive analyses, and evaluate the variables that must be included in each analysis such as site index, age, stand density, species composition, quadratic mean diameter, spatial distribution, and various biogeoclimatic factors.

2. **Provide scientific leadership in developing new knowledge and innovative technologies, publish research results in leading edge scientific journals, communicate research findings at conferences, workshops and seminars for assessment and use by other researchers, participate in scientific community activities, and disseminate research results into the practicing forestry communities through teaching at research institutions and presentations to various research and industry groups at provincial, national and international levels.**

Activities:

Develop new scientific knowledge and innovative technologies that have practical applications in forestry in order to enhance our understanding of the effects of forest management practices and advance the scientific knowledge associated with forest productivity, forest growth and yield, and sustainable forest management.
Publish research findings in nationally and internationally renowned scientific journals.

Back to top

Present research findings at international conferences, meetings, workshops and seminars. Disseminate research results into practicing forestry communities. Participate in scientific community activities. Provide scientific leadership and act as the principal investigator and lead scientist in relevant subject areas.

3. **Lead developer of Alberta's provincial forest growth-and-yield projection system (GYPSY) for natural and regenerated stands. GYPSY provides essential predictive information about the growth and yield of Alberta's forests, particularly those regenerated following harvesting. GYPSY provides a quantitative, science-based tool for assessing alternative silvicultural practices and management strategies, and for linking Alberta's regeneration survey procedures and standards to long-term yield forecasts that can assist forest practitioners, planners and decision-makers across Alberta to determine scientifically sound, harvest levels that are sustainable.**

   Activities:

   Develop flexible, high-precision site index models for all Alberta tree species that enable users to predict site index in relation to total age (as well as breast-height age) and alternative measures of stand height.
   Develop percent stocking models for all Alberta tree species, facilitating the development of an age-independent "percent stocking index" that accounts for variations in the spatial arrangement of trees within stands.
   Develop high-precision mortality models for major Alberta tree species. Link mortality models to site index, species composition, age, percent stocking and competition.
   Develop species composition indices (e.g., density or basal area of the target species at a reference age) and approaches for predicting the development of mixed-species stands and inter-species competition.
   Link the developed models to the Alberta regeneration survey standards, to regenerated stand management practices, and to other standards of silvicultural and management practices. This linkage is a core requirement and an implicit assumption imbedded in sustainable forest management.

4. **Develop multi-disciplinary research projects of varying scales, with the participation of nationally and internationally renowned scientists and other stakeholders with varying backgrounds, interests and emphases. Advance and lead research collaborations among various participating organizations. Organize, execute and lead various research projects as the principal investigator and lead scientist.**

   Activities:

   Coordinate and manage researchers working on various aspects of the projects.

Back to top

Develop and maintain national and international professional and scientific partnerships with other levels of government, universities and the forest industry to foster inter-disciplinary research.
Train and mentor junior scientists, staff, graduate students, consultants and forest industry analysts from provincial to international scope.

5. **Supervise external and internal research staff, hire temporary research assistants, technical staff and contractors, and co-supervise graduate students. Provide scientific advice and technical direction to research staff, collaborators, forest industry analysts and consultants in a team setting to ensure research projects are realistic, practical and scientifically sound, and are completed to high standards within established timelines and budgets.**

6. **Develop and pursue research funding opportunities to establish new, or enhance existing ASRD research programs in forest productivity and growth-and-yield modelling, especially those related to regenerated stands. Manage or co-manage research funds awarded by different agencies in an effective, responsible and professional manner. Ensure all purchases and funding agreements follow established standards and procedures.**

Activities:

Explore research opportunities and prepare research proposals for submission to potential funding agencies.
Secure external research funding through open competitions, partnerships with government, universities, or forest industry and other stakeholders in the forestry sector for collaborative research projects. Manage research funds by formulating an annual research budget for salaries, equipment and operating expenses. Control spending of complex research program budgets allocated to respective projects.

Scope

(Illustrates what internal or external areas the job impacts, and the diversity, complexity, and creativity of the job.)

The Senior Biometrician is the most senior scientific position for Alberta in the areas of forest productivity and growth-and-yield estimation, which is the basis for determining annual allowable cuts (timber harvesting levels) and ensuring the sustainability of Alberta's forests. This position must conduct extensive research, evaluate new knowledge and techniques,

Back to top

and formulate, develop and recommend guidelines, procedures and standards for use by others. Guidelines, procedures and standards must be developed on sound scientific principles, be realistic and cost effective when put into practice. The impact of the position is far-reaching.

The position requires a comprehensive understanding and knowledge of diverse scientific principles involving mathematics, biology, ecology, silviculture, economics, statistics, forest mensuration, forest management and climatology. Outstanding ability to identify research needs, to recognize new research opportunities and challenges, to design large-scale, complex research experiments across a wide range of geographical areas, and most importantly, to develop innovative problem-solving approaches that are scientifically defendable, yet practical and cost efficient. Good ability to interact with industrial partners and academics in assessing knowledge gaps and transferring knowledge through meetings, workshops and field demonstrations.

Understanding and quantifying forest productivity, and modelling the growth and yield of natural and regenerated stands for major Alberta forest types, represents one of the most difficult challenges facing forest scientists. It involves assembling and synthesizing knowledge and data from other disciplines to develop responsive and realistic establishment, growth and mortality functions that can be incorporated into growth-and-yield projection systems. The work typically requires the development of new biological and statistical relationships and the use of techniques new to the profession. Often they are adopted from other sciences, such as mathematics and economics, requiring mental flexibility and creativity.

Strong ability to organize and develop research projects from inception to completion. This involves formulating realistic concepts, developing procedures for data collection and data analysis, utilizing existing or developing new and complex research techniques, discovering innovative ways for interpretation of results, and synthesizing and publishing research findings in peer reviewed scientific journals on provincial, national and international levels.

The position provides for the foundation and a prerequisite for most forestry activities related to forest valuation, forest harvesting, and forest management using the single-tree volume estimation system for all Alberta tree species. The majority of Alberta forestry companies, regulators, consultants and research institutions use this system in their day-to-day management of Alberta’s forests.

The Senior Biometrician is expected to retain the productivity of forestlands for sustainable management; one of the paramount objectives of the forestry profession. Forest productivity measures in terms of site index curves were developed for all Alberta timber types. They are essential tools for measuring and comparing the productive capability of different sites and forest types, and for evaluating the impact of silvicultural and management practices.

Back to top

The Senior Biometrician is the originator and lead developer of GYPSY, Alberta's growth-and-yield projection system for natural and regenerated stands. The system is a growth model designed to help forest practitioners, decision-makers and planners across Alberta to forecast essential forest growth-and-yield information more accurately. Based on the information, alternative silvicultural practices and management scenarios can be assessed, and the most advantageous option for sustainable management can be chosen.

The position is involved as the Alberta Government's scientific/technical director in a joint industry-government initiative to develop regeneration standards linked to long-term growth-and-yield forecasts, and to quantitative forest management objectives based on sound science. Success of this initiative is dependent on the development of regeneration standards by species for height, density, stocking and competition linked to future growth and yield. The ability to relate regeneration practices to the growth and yield of future forests is a core requirement for sustainable forest management.

Issues related to forest productivity and climate relationships and their impacts on the long-term sustainability of Alberta's forests are key to this position. Global climate change may have a major impact on Alberta's forests and the well being of all Albertans. As there is an increasing need to understand the response of forests to predicted climate change scenarios the Senior Biometrician is the lead scientist and project manager on related interdisciplinary projects to address these issues with the objective of helping the forest industry and the Alberta government develop appropriate strategies that best responds to climate change.

As the lead in the development of guidelines and criteria pertaining to model validation standards and statistical procedures to establish model credibility, this position conducts extensive reviews and evaluations of various validation procedures, including many statistical techniques and tests, new guidelines and criteria for validating forestry. The guidelines and criteria are widely referenced and used by scientists nationally and internationally.

Knowledge, Skills and Abilities

(Diplomas, degrees and the most important knowledge factors, skills and abilities including knowledge about practical procedures, specialized techniques, etc.; analytical and conceptual skills and abilities; and skills needed for direct interaction with others. Specific training if it is an occupational certification/registration required for the job.)

PhD in quantitative forest management and biometrics, specializing in forest productivity, stand dynamics and modelling of the growth and yield of natural and regenerated stands.

Back to top

10 years of directly related experience in applied research.

Comprehensive knowledge of scientific principles and excellent ability to identify research needs and to recognize new research opportunities and challenges.

Highly advanced knowledge of scientific theories and practices of forest productivity, mathematical and statistical modeling techniques, forest sampling systems, and stand dynamics. Advanced knowledge of multivariate analysis, biology, forest ecology, silviculture and forest management practices applied in the various ecoregions of Alberta.

Exceptional scientific and technical publication record.

Outstanding cutting-edge research insight and capability in the related discipline to contribute to the development of new scientific and technological innovations.

Exceptional ability to communicate highly complex scientific and technical research results to practicing foresters, other researchers and the general public.

Provide strong leadership to diverse, multi-disciplinary research teams composed of a variety of stakeholders. Able to provide effective support to other researchers, colleagues and management staff in team environments.

In-depth understanding of nonlinear simultaneous modelling techniques; site productivity description and estimation methods; error propagation mechanics; complex, multi-species stand development patterns; spatial and non-spatial modelling techniques; and individual tree and whole stand mortality dynamics.

Exceptional knowledge of the principles, theories and techniques of stand, diameter-distribution and tree-level models for pure and mixed-species stands, sampling systems for operational and research studies, and experimental designs for controlled and uncontrolled experiments.

Comprehensive in-depth understanding of international forest productivity and modelling research.

Demonstrated ability to obtain external research funding to establish new or to enhance existing research programs in support of ASRD’s goals and business plans.

Proven strong communication skills, both verbal and written, assure effective interactions with researchers, co-workers, consultants, forest industry representatives, students and academics working in similar or different fields.

Extensive knowledge of field data collection techniques, long-term growth-and-yield monitoring systems and lab procedures for tree ring analysis. Familiarity with complex field and lab equipment used for research projects.

A good understanding of Alberta legislation and policies related to regeneration, forest management and forest operations.

A good general understanding of computers. Exceptional knowledge of computer software used for statistical analysis and graphics.

Must be eligible for registration with the College of Alberta Professional Foresters.

Back to top

Contacts

(Main contacts of this position and the purpose of those contacts.)

Forest Research Organizations and Institutions. Examples: International Union of Forest Research Organization, Canadian Forest Service, United States Department of Agriculture (USDA) Forest Service, and University of Alberta.

Forest Industry Companies. Examples: West Fraser Mills, Weyerhaeuser Canada, Alpac Forest Products, Canadian Forest Products and many other forestry companies.

Forestry Associations and Research Groups. Examples: Foothills Growth and Yield Association, Mixedwood Management Association, Western Boreal Growth and Yield Association, Foothills Research Institute and others.

Consulting Companies. Examples: The Forestry Corp., Silvacom Ltd., Timberline Forest Inventory Consultants, Greenlink Forestry Consultants, J.S. Thrower and Associates, and Dick Dempster Consulting Ltd.

Federal and Provincial Governments. Examples: Natural Resources Canada, Canadian Forest Service, Manitoba Department of Conservation, Ontario Ministry of Natural Resources, Alberta Environment, and USDA Forest Service.

Academics and Graduate Students. Examples: University of Alberta, University of Winnipeg, University of Manitoba, Lakehead University, University of British Columbia, University of Greenwich, and Niigata University.

Scientific Journals and Professional Magazines. Examples: Annals of Forest Science, Tree Physiology, Canadian Journal of Forest Research, Forest Ecology and Management, Forest Science, Journal of Tropical Forestry, Journal of Forest Research, Scandinavian Journal of Forest Research, Western Journal of Applied Forestry, and Silva Fennica.

External and Internal Staff Supervised: research scientists, foresters, forest biometrician, forest technicians, computer programmer, research assistants and contractors.

Supervision Exercised

(List position numbers, class titles, and working titles of positions directly supervised.)

One forest biometrician (permanent Scientific 3).

Back to top

One research scientist (industry sponsored position working in ASRD. Scientific 3 equivalent).

One part-time research assistant (industry sponsored position working at ASRD).

Alberta Government

Last Review / Update: 2016-03-11

Back to top

Subsidiary 2
Benchmark Evaluation - 027SC03

Identification Section

Working Title: Research Scientist - Value Added Meat Processing

Department: Agriculture and Forestry

Division, Branch/Unit: Food Processing Development Division, Processing Programs

Reports To: Branch Head, Programs (Senior Manager)

Levels to D.M.: 4

Job Description: 027SC03

MRS: See the Minimum Recruitment Standards for Scientific

Job Code: 027SC - Scientific 5

Organization Chart
(requires login)

Evaluation

Knowledge
GI2 350

Creativity/Problem Solving
50% 175

Responsibility
C2 132

TOTAL JOB POINTS
657

Comments on Role

This is a senior scientific position responsible for identifying research needs, designing and conducting applied and scientific research, project management, and the preparation of grant applications, reports and scientific papers. The position provides

Back to top

consultation and advice to program members and industry clients. The position will participate in inter-disciplinary research and developmental projects as a scientific expert.

As the lead member of the Food Processing Development Division's Value Added Meats Program, it is responsible for establishing collaborative national and international applied research in value added meat processing among industry partners, universities, technical schools and other research institutes and to facilitate the commercialization of these research activities. This position is provincial in scope and is the leading scientific expert on processed meats for the Government of Alberta.

Comments on Evaluation

- **Knowledge:**
  Content:

  - **G:** This is the most advanced level of scientific work for experienced research staff that have demonstrated outstanding personal scientific achievement (PhD. required), have wide experience in project coordination and have consulted as a scientific leader in area of expertise. The job requires expert knowledge of processed meats, meat science, and how new products will have an impact or add value to the market. The job requires advanced knowledge of scientific principles and the ability to identify research needs, develop hypothesis, design complex research projects and manage large multi-disciplinary research projects. This position performs the combined role of Senior Scientist and Program Leader. In order to do this effectively it must possess expert knowledge in the field of value added meat process to provide advice and consultation to stakeholders (depth) combined with the breath of knowledge required to identify research needs, lead scientific research, project management, preparation of scientific reports and papers, etc. This combination of depth and breath bring this position beyond the F+ level to the guru level.

Complexity and Diversity:

- **I:** The position has significant relevance to the meat production industry and impacts provincial and national research organizations; however, impact is not department-wide. The job provides leadership to interdisciplinary research teams and has supervisory responsibilities.

Human Relations Skills:

- **2:** The position requires strong communications skills and the ability to relate to a range of individuals from lay people to other scientists. The job requires team leadership skills in directing research projects. The job influences producers and industry through the technology transfer component of the work. Significant contact outside of the Unit

Back to top

with other scientists, researchers, industry and producers. The job does not face intense conflict or the emotional situations as described at the 3 level.

- **Creativity/Problem Solving:**

50%: Both problems and solutions need to be identified. The job develops research projects based on the department business plan, the division's strategic plans and in response to client needs or production problem areas. The job performs highly complex applied research. Thinking is guided by few precedents.

- **Responsibility:**

C2: The job conducts applied research and disseminates the results through technology transfer activities. Research projects are, for the most part, long-term.

Last Reviewed: November, 2009

Alberta Government

Last Review / Update: 2016-03-11

Back to top

Subsidiary 2 Benchmark
Job Description - 027SC03

Identification Section

Working Title: Research Scientist - Value Added Meat Processing

Department: Agriculture and Forestry

Division, Branch/Unit: Food Processing Development Division, Processing Programs

Reports To: Branch Head, Programs (Senior Manager)

Levels to D.M.: 4

Purpose

(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.)

The Food Processing Development Division is responsible for assisting the Alberta food industry with applied research, product and process development and commercialization. The holder of this position contributes as a lead member of the Food Processing Development Division's Value Added Meats Program and is responsible for establishing collaborative national and international applied research in value added meat processing among industry partners, universities, technical schools and other research institutes and to facilitate the commercialization of these research activities.

This is a senior scientific position responsible for identifying research needs, designing and conducting applied and scientific research, project management, and preparation of grant applications, reports and scientific papers. The position provides consultation and advice to program members and industry clients. The incumbent will participate in interdisciplinary research and developmental projects as a scientific expert and play a role in the development of a collaborative value added meats research program within the province.

Back to top

This position initiates and facilitates multi-disciplinary research and development with industry stakeholders, contributes to new product launches, and fosters strategic production, marketing and business alliances.

Working with industry clients and scientific researchers, the incumbent will require a detailed understanding of the technical and scientific aspects of meat science as well as developed competency skills necessary for effective communication with industry clients, research institutions, and senior government officials. This position reports to the Branch Head, Programs.

Responsibilities and Activities

(Each end-result/responsibility shows what the job is accountable for, within what framework and what the added value is.)

1. **Identify, plan and conduct collaborative research with industry, academia and other research institutes, nationally and internationally, to provide direction and promote scientific and technical advances in the area of meat science.**

   Activities:

   Liaison between groups in industry, academia and other research institutes to establish partnerships, based on common goals and establishing research priorities.
   Establish mechanisms with clients and other partners to identify and detail potential impact/opportunity of trends.
   Solicits organizations for matching funds and sharing of research costs.
   Coordinate, plan, implement and monitor research projects with industry, academia and other research institutes.
   Acts as project manager/leader in collaborative research projects.
   Provides training and technical guidance to scientific and technical staff in skill development to ensure successful completion of projects.
   Supervises graduate students with applied research projects.
   Supervise, monitor and organize the overall work schedule of technical assistance in multi-disciplinary research projects.
   Assimilate and disseminate the results of research through peer reviewed journals and non-published reports.
   Facilitate commercialization of applied research activities.

Back to top

2. **Provide technical leadership to food processors and other food scientists in the development of new, market responsive and receptive food products in the area of meat product and process development.**

   Activities:

   Identifies market opportunities, emphasizing consumers, through knowledge management, market intelligence, and networking and communicates those ideas to new and existing companies.
   Creates partnerships and strategic alliances to address opportunities utilizing value chain principles along the food continuum, emphasizing consumer end-use.
   Work with industry clients to identify client/project needs/objectives, project protocols and develop project plans.
   Conducts and supervises bench top and in-plant product and process development.
   Acts as the Technical Advisor and lead scientist in the area of meat product and process development to program scientists and technologists, fellow Divisional scientists, as well as providing external AARD program support.

3. **Provide knowledge and technical skill to the agri-food industry, academia, other research institutes and Department Branches to maintain and foster a globally competitive industry.**

   Activities:

   Organize/participate in seminars, workshops and conferences.
   Provide scientific reports, research papers suitable for scientific publication, information bulletins, and personal communications for target markets or publications.
   Technical advisor/consultant and provide information on meat science to other departmental staff.
   Work with staff, clients, partners to build long-term relationships for the effective transfer of knowledge and skills.

4. **Maintain and enhance scientific, technical and competency skills in order to provide leadership to the department and the industry.**

   Activities:

   Scientific information collection and dissemination, participates on research committees, branch and sector teams and participates at research conferences to keep abreast of research findings.
   Establish and maintain a network of peers.
   Maintain membership in appropriate professional associations and scientific groups.
   Technical training in meat science and processing technologies.

Back to top

Increase understanding of strengths, opportunities and trends in meat processing through participation in scientific interest groups, on industry committees and department teams.

Scope

(Illustrates what internal or external areas the job impacts, and the diversity, complexity, and creativity of the job.)

Variety and Size of Projects:

The job conducts applied research and disseminates the results through technology transfer activities. These projects are diverse in both variety and size, covering a wide range of processing technologies. Research projects are for the most part long term.

Manages multiple projects on an ongoing basis. Management of projects within the Division, across the Sector and other research institutions (U of A, Agriculture and Agri-Food Canada (AAFC) – Lacombe Research centre, Olds College).

Technical services and consultation are provided, identifying and implementing solutions to a variety of product and processing problems.

Supervision of graduate student projects in area of expertise.

This position directly impacts the growth and diversity of value-added processing and investment in the province, resulting in improved market access and increased global competitiveness of Alberta's agriculture and food industry.

Impacts:

Collaborative focused research with the provincial/federal research institutions targeting industry priorities.

Increase educational capacity within Alberta.

Increased adaptation /commercialization of applied research /technological developments.

Knowledge, Skills and Abilities

(Diplomas, degrees and the most important knowledge factors, skills and abilities including knowledge about practical procedures, specialized techniques, etc.; analytical and conceptual skills and abilities; and skills needed

Back to top

for direct interaction with others. Specific training if it is an occupational certification/registration required for the job.)

Education:

Advanced degree (Ph.D.) in Food Science or related field with a specialty in meat science.

Experience:

At least 8 years industry/applied research in the area of value added meat research, product/process development and commercialization.

Knowledge:

Expert knowledge of meat science, value added meat processing.

Advanced knowledge of scientific research principles, ability to identify research needs, develop hypothesis, design complex research projects and coordinate and manage large multi-disciplinary research projects.

Knowledge of Canadian food and drug regulations, principles of HACCP (Hazard Analysis Critical Control Points) and GMP (Good Manufacturing Practices), trained in WHMIS (Workplace Hazardous Material Information System) and first aid.

Knowledge of global trends in agriculture, food and related industries.

Knowledge of relevant research being conducted globally.

Knowledge of the national and international meat processors.

Knowledge of AARD policies in human resources, finance and information technology.

Knowledge of the goals and strategies of the Industry Development & Food Safety Sector, and the Food Processing Development Division.

Skills and Abilities:

Requires superior project management skills to coordinate several concurrent projects and deliver accurate and high quality results within an appropriate time frame.

Able to conduct independent and innovative research using advanced research methods.

Be creative and original in product/process development and problem solving.

Requires effective communication and listening skills to understand client's needs and to effectively disseminate information and results to individual clients or large groups.

Ability to write in both scientific language for technical publication and plain language for a non-scientific population.

Able to assimilate and evaluate scientific literature and data.

Back to top

Able to operate a wide range of laboratory and food testing equipment.

Have leadership skills in directing research projects, with adaptability and flexibility to work in a team environment for the common project goal.

Leadership skills to participate as a partner in collaborative research teams and to coach junior scientists in applied research skills.

Alberta Drivers License

Contacts

(Main contacts of this position and the purpose of those contacts.)

Industry clients and Industry Associations/Organizations – to establish research priorities for the value added meat industry in Alberta and to act as project manager/leader for applied collaborative research projects, technical advisor.

University of Alberta, AAFC – Lacombe Research Centre, University of Alberta (Meat Science and Agricultural Economics programs) – to initiate, manage, lead or support collaborative research programs and applied research projects in the area of value added meats, supervision of graduate students in meat product/process development.

Funding Institutions - solicit funding and support from appropriate partners.

AARD Staff – to liaise with other departmental staff on common goals and research priorities and for project management when applicable.

Supervision Exercised

(List position numbers, class titles, and working titles of positions directly supervised.)

Graduate students.

Alberta Government

Last Review / Update: 2016-03-11

Back to top

Subsidiary 2
Benchmark Evaluation - 026SC05

Identification Section

Working Title: Forest Management Specialist

Department: Agriculture and Forestry

Division, Branch/Unit: Forest Management Branch

Reports To: Forest Planning Section Manager, Senior Manager

Levels to D.M.: 4

Job Description: 026SC05

MRS: See the Minimum Recruitment Standards for Scientific

Job Code: 026SC - Scientific 4

Organization Chart
(requires login)

Evaluation

Knowledge
F+I2 304

Creativity/Problem Solving
43% 132

Responsibility
C2 100

TOTAL JOB POINTS
536

Comments on Role

The Forest Management Specialist is the departmental and ministry scientific expert in the area of forest management. The position is responsible for providing scientific leadership, direction and specialized advice to executive and senior

Back to top

management, professional staff, industry and academic agencies through research and analysis of forest management issues. Its focus is to influence provincial forest management planning and operations to ensure sustainable forest management.

The position develops and maintains effective partnerships with provincial and national forestry and scientific communities as well as industry and other government agencies to ensure innovative research is conducted and implemented. It identifies, influences, and participates in leading edge research in topic areas that are new and ground-breaking in several areas of forest management, including forest crop planning, forest modeling, monitoring, and forest certification. Research results may set precedents nationally and internationally.

The position may be an adjunct professor and supervise graduate level students. It is expected to publish scientific findings and present at national and international scientific conferences. The Forest Management Specialist works collaboratively to obtain research grants, manages research funds, and acts as a scientific referee for the department and industry.

Comments on Evaluation

- **Knowledge:**
  Content:

    - **F+:** The Forest Management Specialist requires a PhD in forestry or a related natural resources discipline and strong knowledge in forestry planning, silviculture and adaptive management and performance/compliance monitoring. In addition, the position requires advanced and highly developed knowledge of computer modeling techniques, statistical analysis, advanced analytical skills and have quantitative research ability. Position is involved in leading edge research and requires well developed conceptual scientific skills in order to envision innovative scientific hypotheses for research and being able to integrate the hypotheses into information for staff, executive level industry as well as the scientific community that will shape resource and forest management planning provincially and potentially nationally and internationally. The position is considered an F+ based on the deep specialty that is recognized internally and externally as an expert in its field.

Complexity and Diversity:

- **I:** The position impacts the forest industry, which is significant in the province. Research is conducted within a diverse scientific background within forest management. This includes but is not limited to forest crop planning, forest modeling, monitoring, forest certification. The position will be expected to identify and encourage creative, leading edge scientific research, to champion the utilization of research results in forest management activities and to lead activities designed to demonstrate sustainability.

Back to top

The position provides specialized advice to executive and senior management, professional staff, industry and academic agencies through research and analysis of forest management issues.

Human Relations Skills:

- **2:** Position requires strong human relations skills to negotiate, communicate and influence change concerning the findings and hypotheses related to its research and analysis. It is also responsible for translating scientific analysis and modeling results into recommendations and guidelines that non-scientific line managers and staff can apply to their work. As well, PUR participates in scientific community events at the national and international level and may be an adjunct professor.

- **Creativity/Problem Solving:**

43%: Problems are often unique without clear precedent. Deep scientific knowledge and research is required to identify solutions. Position has autonomy to choose the most appropriate scientific principle to address various situations. PUR is expected to envision innovative, leading edge scientific hypotheses for research and create complex models to aid management decision making. Also requires a very high level of analytical thinking.

- **Responsibility:**

C2: Position is a scientific expert and departmental representative while influencing forest management planning and operations in order to ensure sustainable forest and land management. PUR is responsible for identifying and encouraging creative, leading edge scientific research and analysis.

Last Reviewed: February, 2012

Alberta Government

Last Review / Update: 2016-03-11

Back to top

Alberta

Subsidiary 2 Benchmark
Job Description - 026SC05

Identification Section

Working Title: Forest Management Specialist

Department: Agriculture and Forestry

Division, Branch/Unit: Forest Management Branch

Reports To: Forest Planning Section Manager, Senior Manager

Levels to D.M.: 4

Purpose

(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.)

Through facilitation of original research and analyses of the implementation of forest management plans, the Forest Management Specialist provides leadership, direction and specialized advice to executive and senior management, professional staff as well as academic and external agencies. This position acts as a scientific expert and departmental representative while influencing forest management planning and operations in order to ensure sustainable forest management. The Forest Management Specialist will develop and maintain effective partnerships with scientific communities, industry, and other government departments to ensure innovative research is conducted and implemented in forest management planning areas. This includes applying expertise in the following areas: forest crop planning, silviculture, performance monitoring, forest certification, and harvesting systems. Knowledge of the outputs of timber supply analysis, forest inventory, and yield projections is required. The position will be expected to identify and encourage creative, leading edge scientific research, to champion the utilization of research results in forest management activities and to lead activities designed to demonstrate sustainability. The work is completed within the regulatory framework of the Ministry (i.e. Forests Act and Regulations); Ministry and Division business plans, as well as related policies and procedures.

Back to top

Responsibilities and Activities

(Each end-result/responsibility shows what the job is accountable for, within what framework and what the added value is.)

1. Provide innovative scientific leadership in terms of forest management. The major activities are:

Identify, conduct innovative research with academic institutions, and publish findings that will lead to solutions for a variety of forest management issues.
Incorporate scientific findings or hypotheses into forest management planning.
Recommend processes or methods that will enhance forest sustainability for forest management plans.

2. Act as a departmental and ministry scientific expert in the area of forest management. The major activities are:

Called upon by executive and senior management to influence program planning and execution by conducting briefings both written and verbal, as well as information sharing with professional staff with whom the position interacts in a consultative advisory role.
Will give expert scientific advice on questions relating to forest management and the diverse topic areas within this discipline.
Acts as a referee within confines of scientific expertise for department and industry
Represents the Ministry at senior level negotiations with industry to ensure that sustainability and economic viability are maintained.
Acts as a scientific expert / ministry representative to the general public via various communication methods as well by leading information sessions, conferences. May also be considered as an adjunct faculty member at post-secondary institutions.

3. Create successful partnerships with the forestry scientific communities to ensure leadership within the topic areas of expertise. The major activities are:

Acts as a leader within the scientific community, provincially, nationally and at times internationally, within field of expertise. With these liaisons, the position is equipped with emergent strategic information to direct planning and future program development. The position will work independently or with other discipline related experts to resolve scientific issues and suggest new areas of research.
Prepare reports of scientific worthiness for publication in recognized academic journals relating to area of expertise.
Present at recognized national and international scientific conferences.
Reviews publications submitted to research journals for journal inclusion.

Back to top

4. Responsible for reviewing existing programs and policies in forest management. Major activities include:

Reviewing current industry plans and strategies to ensure accuracy in terms of the scientific basis upon which the plans are grounded.
Recommending changes in plans to ensure continued sustainability based upon recent and emergent scientific data and research.
Ensuring that all issues are vetted with an understanding of their political sensitivity as well as their impact on forest sustainability.

Scope

(Illustrates what internal or external areas the job impacts, and the diversity, complexity, and creativity of the job.)

Scope: Complexity & Diversity

The scope for research and impact of the position is considered high as it performs an integral role in negotiating solutions to controversial issues within its field of scientific expertise.
The position affects an important aspect of the forest industry provincially and nationally.
The position may also act as lead investigator in complex research projects with scientific community partners and/or initiate innovative research initiatives.
Research conducted is highly creative and deals with topic areas that are new and innovative within the discipline. The position is expected to influence innovative research and test new hypotheses. Extrapolating from this research will be creative and complex. Research is conducted within a diverse scientific background within forest management. This includes but is not limited to forest crop planning, forest modeling, monitoring, forest certification.
The variety of topic areas impacts complexity.

Knowledge, Skills and Abilities

(Diplomas, degrees and the most important knowledge factors, skills and abilities including knowledge about practical procedures, specialized techniques, etc.; analytical and conceptual skills and abilities; and skills needed for direct interaction with others. Specific training if it is an occupational certification/registration required for the job.)

Knowledge: Professional/Content Knowledge

Recognized Ph.D. in forestry plus 5 years progressively responsible related experience.

Back to top

Membership or eligibility for membership in College of Alberta Professional Foresters.

Knowledge must be augmented by directly applicable and related experience and research as well as experience evaluating proposals for technical and scientific merit.

Highly developed working knowledge of forestry planning; silviculture and adaptive management and performance/compliance monitoring.

Highly developed skills in timber supply/modeling, reforestation techniques and effectiveness monitoring as well as cumulative effects modeling.

Knowledge must be used within a variety of subject/topic areas that affect forest management planning.

Skills/Abilities

Advanced and highly developed computer modeling/statistical analysis package skills as well as GPS inputs, outputs and analyses.

Advanced analytical, quantitative research ability as well as human relations skills in order to negotiate, communicate and influence change concerning the findings and hypotheses related to research and analyses.

Well developed conceptual scientific skills to envision innovative scientific hypotheses for research and to integrate hypotheses into information for staff, Ministry executive, industry as well as the scientific community that will shape resource and forest management planning.

Human Relation Skills

Highly developed interpersonal communication skills in order to be able to influence internal/external contacts.

Highly developed negotiating skills in order to bring resolution to disparate groups' needs and wants.

Converses with professionals, non-professionals, senior executives, management and acts in a consultative advisory role for all levels within the Ministry.

Well developed communication skills to be able to influence industry practices by its reputation and standing within its scope of scientific knowledge and applicability of same.

Portrays an assertive and persuasive leadership role.

Able to diffuse politically sensitive issues relating to forest management planning issues.

Ability to work well in collaborative research projects as a member and at times lead investigator.

Contacts

(Main contacts of this position and the purpose of those contacts.)

Senior Manager Forest Planning – program direction, approvals, budgets

Executive Director Forest Management Branch – strategic direction, briefings

Assistant Deputy Minister Forestry Division – strategic briefings

Specialists – science and research coordination, cross-discipline synergy

Back to top

Forest Industry – research briefings, funding, partnerships, innovation, applied research proposals

Academic Scientists and Researchers – grant requests, partnerships, peer review, publications, information exchange, innovation

GoA Ministries – coordinated research, partnerships, briefings, standards and best practices

Supervision Exercised

(List position numbers, class titles, and working titles of positions directly supervised.)

No direct reports.

Alberta Government

Last Review / Update: 2016-03-11

Back to top

Subsidiary 2
Benchmark Evaluation - 026SC04

Identification Section

Working Title: Senior Water Quality Modeler

Department: Environment

Division, Branch/Unit: Environmental Assessment Division, Water Policy Branch, Surface Water Policy Section; Water Quality Evaluation

Reports To: Senior Manager, Water Quality Evaluation (Senior Manager 1)

Levels to D.M.: 5

Job Description: 026SC04

MRS: See the Minimum Recruitment Standards for Scientific

Job Code: 026SC - Scientific 4

Organization Chart
(requires login)

Evaluation

Knowledge
F+I2 304

Creativity/Problem Solving
43% 132

Responsibility
C2 100

TOTAL JOB POINTS
536

Comments on Role

Back to top

As a Senior Water Quality Modeler, the position provides advice and recommendation on how water quality and aquatic ecosystems in the province should be managed. Environmental models are key decision support tools that create a number of scenarios from raw data, and then forecast the effects and risk of industry and private development on a land-surface water base. The position is an expert in developing modeling methods, and reviewing and selecting water quality models from the international model development field. These models analyze ice-cover, lake situations, sediment water interfaces, aquatic biota, and land-surface water interactions for the province. In addition to modeling, the position identifies issues that are emerging in surface water quality in Alberta through original and applied research. Data collected during this research is then analyzed, reported in scientific papers and journals, and presented at a national and sometimes international level at symposiums and workshops. To stay apprised of the latest advancements in modeling, the position reviews scientific literature, attends scientific conferences and workshops, interacts with peers in the field, and works with scientific cross-ministry groups that have an interest in water quality.

Comments on Evaluation

- **Knowledge:**
  Content:

    - **F+:** The position possesses a specialized and expert knowledge in the field of limnology. Because of this high degree of specialization, the position must possess a minimum of a post-graduate degree in one or more areas of limnology, such as water chemistry, aquatic biology, aquatic ecotoxicology as well as experience in modeling and statistical analysis. The position often publishes research in various scientific journals and reports and requires a thorough knowledge of Alberta's surface water quality and aquatic ecosystem health. This position is considered an F+ because it possesses specialized knowledge leadership. For example, the position provides high quality scientific information, guidance and leadership at a departmental and provincial level, in evaluation and modeling of water quality and aquatic ecosystems. The difference between this position and an F position is the scope and depth of knowledge this position possesses.

Complexity and Diversity:

- **I:** The position deals with almost all aspects of the aquatic environment (excluding only fisheries), and must have an awareness of the links to related issues such as climate change, terrestrial systems, physical and chemical conditions. It must understand how water quality models can be used or modified to accommodate Alberta's water quality issues, as well as the many factors to take into consideration when modeling for accurate results.

Human Relations Skills:

Back to top

- **2:** While the position is involved in analyzing scientific data and liaising with fellow scientists and researchers on water quality issues up to an international level, it is also responsible for translating its scientific analysis and modeling results into recommendations and guidelines that non-scientific line managers and GoA staff can apply in their work. If the position only worked with peers in the scientific community and was not required to translate technical terminology or message results to non-technical audiences, it would be rated as a "1".

- **Creativity/Problem Solving:**

43%: The position is regularly conducting original research which is eligible to be published in scientific journals for scientists at a national and international level. The 43% rating recognizes the constant level of analysis and development of new models and scenarios required by the position. The changing priorities and environmental activities in the province do not allow for precedents to be established, and the position is continuously developing new programs and approaches as a result of its research.

- **Responsibility:**

C2: The position's focus is on analyzing data and interpreting the results for AENV staff and stakeholders who have a role in Alberta's water quality issues.

Last Reviewed: November, 2009

Alberta Government

Last Review / Update: 2015-02-17

Back to top

Alberta

Subsidiary 2 Benchmark
Job Description - 026SC04

Identification Section

Working Title: Senior Water Quality Modeler

Department: Environment

Division, Branch/Unit: Environmental Assessment Division, Water Policy Branch, Surface Water Policy Section; Water Quality Evaluation

Reports To: Senior Manager, Water Quality Evaluation (Senior Manager 1)

Levels to D.M.: 5

Purpose

(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.)

The basic purpose of this job is to provide high quality scientific information, guidance, and leadership at a departmental and provincial level, in evaluation and modeling of water quality and aquatic ecosystems. Environmental models provide a scientific basis for water management planning and policy development. Modeling is a key decision support tool, which provides capacity to forecast the effects of development and to conduct risk assessments based on scenario evaluations. This job also involves maintaining scientific leadership and credibility in the business by: regular interaction with the broader scientific community, staying current on relevant original and applied research, identifying issues, developing new programs and approaches, and by mentoring and transferring technical knowledge to other staff and partners. This work also involves the broader environmental community with its partnerships and shared responsibility.

In addition to being a senior professional in environmental modeling, the position supports other team members addressing ecosystem impact and risk assessment for specific applications. This job operates within the framework of the Monitoring,

Back to top

Evaluation, and Reporting Strategy, and the Systems Approach to Cumulative Effects Management, of the Environmental Assurance Division, of AENV. The job operates under the authority of the Environmental Protection and Enhancement Act (EPEA) and the Water Act, and support the Departmental Business Plan, and the *Water for Life Strategy*.

The main contribution of this job to the organization is in providing the departmental scientific leadership, guidance, service and credibility in the area of quantitative water quality modeling, a key decision support tool in Cumulative Effects Management for watersheds.

Responsibilities and Activities

(Each end-result/responsibility shows what the job is accountable for, within what framework and what the added value is.)

1. Provide scientific leadership and information in limnology and water quality modeling within AENV, to maintain and enhance the quality of work in this function, to build capacity in these decision support tools, to contribute to the assurance of environmental quality, and to contribute to the credibility of AENV and its commitment to excellence in environmental matters.

Activities:

Reviews scientific literature in relevant fields to keep aware of advancements in modeling; attends appropriate scientific conferences and workshops; interacts with other scientists in the field; reviews information from other jurisdictions for relevance and usefulness to Alberta situation.
Publishes scientific papers and presents scientific information at conferences and workshops.
Provides scientific leadership and input on water quality and environmental modeling at government or multi-stakeholder scientific workshops.
Engage other ministries, the federal government, industry and stakeholders as appropriate (e.g., CCME-Water Quality committees) to support sound science in water modeling.

2. Provide technical knowledge transfer in the water quality modeling business of AENV and its partners, in order to enhance shared environmental management and stewardship, and encourage excellence in the business.

Activities:

Back to top

Develops modeling methods and guidance manuals; evaluates new models from the international model development field.

Mentors and serves as a resource person to other water quality staff and partners, particularly regional and EAD limnologists, in the area of modeling expertise and the AENV water quality information legacy.

Carries out expert reviews of AENV and other agencies' draft reports particularly in the field of modeling.

3. Provide specialist service to departmental, cross-ministry, and external partners and stakeholders on water quality modeling.

Activities:

Reviews, selects, and implements water quality models and general risk assessment tools for priority waters.

Develops and/or adapts models, model linkages, and sub-routines for specific Alberta needs, such as for: ice-cover, lake situations, sediment-water interfaces, aquatic biota, and for land-surface water interactions.

Develops empirical decay/transformation co-efficients for select substances of concern in AB waters, and writes custom codes as appropriate.

Identifies model features, co-efficients and information needs to enable accurate model evaluations for AB waters.

Facilitates applied research to fill information gaps.

Conducts model runs and scenario evaluations for priority situations.

Supplies scientific evaluations and modeled scenario inputs to policy development.

Drafts AR responses and briefing notes; prepares presentations and advice to management on WQ modeling.

Participates in internal and external teams dealing with water quality monitoring, policy, and modeling, such as the Environmental Modeling Initiative and the Industrial Heartland Initiative.

Participates in the Water Quality Team, including developing work plans and long-range strategic plans.

Supports regional staff, other AENV groups, WPACs, as appropriate, with respect to regional issues, watershed planning and scenario modeling, public meetings, etc. Responds to direct requests for information from the public.

4. Assess and identify issues and needs in surface water quality in Alberta, and design and oversee original and applied research and monitoring to address these needs.

Activities:

Evaluates and advises on water quality conditions and issues, and identifies research, monitoring, and information gaps and needs.

Back to top

Designs and oversees water quality monitoring and research programs and contracts, particularly those supplying data for use in modeling. This includes: annual input to the AENV Surface Water Quality monitoring program, detailed design of selected provincial-scope programs, program supervision, including field inspection, liaison with field staff, data validation, evaluation and reporting of results.

Evaluates proposals, negotiates contracts, establishes performance criteria, manages contracts and research scientists, and conducts performance reviews.

Serves on and leads appropriate AENV teams such as the SWQ Monitoring SubCommittee, the QA Working Group and the Environmental Modeling Framework.

5. Evaluate data and information on surface water quality in Alberta and report on specific issues, conditions, and the state of the aquatic environment in the province, for use in policy development and management options.

Activities:

Evaluates and reports on water quality conditions. Prepares detailed evaluations and scientific reports, particularly dealing with province-wide conditions. Evaluates compliance of ambient water quality with guidelines and objectives. Assesses cause and effect relationships, the effectiveness of guidelines, and implications for aquatic ecosystem health. Prepares recommendations for further work.

Provides input to and prepares other information products, such as the SWQ website, value-added graphs and tables of water quality information, and brochures on limnological topics.

Provides input and advice from evaluations and modeling, for use in policy development, and in environmental management.

Scope

(Illustrates what internal or external areas the job impacts, and the diversity, complexity, and creativity of the job.)

This job impacts and supports several AENV and AB government functions and policies, by providing the scientific knowledge and guidance that infuses the Systems approach to Cumulative Effects Management, and by providing decision support tools (modeling) for water quality management. Specifically, the job impacts:

The identification of water quality issues, their nature and scope within Alberta and beyond.

The design and execution of scientifically defensible water quality monitoring and research programs of AENV.

Back to top

The management of the environment by AENV, in terms of protecting water quality and aquatic ecosystems. This job impinges on point source standards, and ambient guidelines and objectives, by evaluating their effectiveness.
Management of urban practices (wastewater treatment and urban run-off) by AENV.
Practices of Alberta Agriculture and Rural Development with respect to pesticide usage, fertilizer application, and land management.
The role and practices of the evolving watershed councils in watershed planning particularly with respect to water quality modeling as a decision support tool.

The complexity of this job is high, resulting from the fact it deals with almost all aspects of the aquatic environment (excluding only fisheries and some other aquatic biota), as well as linkages to terrestrial systems and climate change. This includes physical conditions (temperature, light penetration, suspended solids, colour, flow and lake levels), chemical conditions (ion chemistry, metals, nutrients, organics, synthetic contaminants such as pharmaceuticals, etc), and biotic conditions (bacteria, plankton, macrophytes, and periphyton). The water compartment of lakes and rivers is the main part of this, but the sediments of water bodies are also involved. Contaminant pathways, interactions, fate, and effects in the aquatic environment are complex, and must be fully considered as part of this job, particularly as part of water quality modeling. Point, and non-point source inputs of contaminants must be properly addressed in modeling. This complexity also provides opportunity for considerable creativity in modeling approaches.

The work ranges province-wide, and national and international information must also be considered. In addition, policy and management implications of model output must be evaluated and communicated to management and other groups. The projects designed and managed by this job range up to several years in duration and involve multiple stakeholders within and outside government.

Knowledge, Skills and Abilities

(Diplomas, degrees and the most important knowledge factors, skills and abilities including knowledge about practical procedures, specialized techniques, etc.; analytical and conceptual skills and abilities; and skills needed for direct interaction with others. Specific training if it is an occupational certification/registration required for the job.)

A post graduate degree (Ph.D. or Masters) in one or more areas of limnology, such as water chemistry, aquatic biology, aquatic ecotoxicology, complemented by extensive experience in modeling. Eligibility for membership in an appropriate professional association. Willingness to meet professional requirements on an ongoing basis, and to increase knowledge by

Back to top

pursuing professional and continuing education opportunities. Scientific knowledge of specialized theories/principles in the field of water chemistry, biology, limnology, as well as a thorough understanding of ecological relationships, modeling, and statistical analytical procedures. A thorough knowledge of Alberta's physiography, economic activities and their relation to surface water quality and aquatic ecosystem health.

The ability to think strategically and provide scientific leadership, knowledge transfer, and management in the modeling field. The ability to communicate with and manage other staff involved in this work. The ability to conduct modeling in support of decision-making. The ability to apply existing scientific information and to integrate new data, tools, and information as it arises, using the latest methods, and to present the information in terms understandable to others. Excellent data analysis and interpretation skills along with oral and written communication skills with the ability to communicate effectively with specialists and non-specialists, including stakeholders and members of the public.

The position must be adept at interpersonal skills and have the ability to work effectively independently or as part of multidisciplinary teams or committees. Sound knowledge of the use of desktop computers, water quality models, spreadsheets, statistical analyses and software, and graphics software, is a must.

Contacts

(Main contacts of this position and the purpose of those contacts.)

Individuals:

AENV limnologists, modellers, technologists, and policy analysts, academics (e.g., universities).

AENV Offices:

Water Policy Branch, Regional Offices (limnologists, hydrologists), Oil Sands Environmental Management Division, Cumulative Effects Management Transformation Secretariat, Strategic Support and Integration Division.

Organizations:

Regional planning committees (e.g., Industrial Heartland, North Saskatchewan Regional Plan), Watershed Planning and Advisory Councils (e.g., NSWA), Industrial Associations (e.g., Northern Capital Industrial Association), municipalities, federal committees (Canadian Council of Ministers of the Environment).

Back to top

Association with these offices and organizations is to provide guidance and leadership on water quality modeling for a number of initiatives related to Alberta Environment planning. These range from direction of applied modeling projects to development of provincial frameworks and policy regarding modeling and evaluation policy.

Supervision Exercised

(List position numbers, class titles, and working titles of positions directly supervised.)

Supervises a junior modeling scientist (proposed).

Directs professionals and technologists assigned to research, monitoring, and reporting programs that this position oversees. Directs scientific researchers working under contract.

Alberta Government

Last Review / Update: 2015-02-17

Back to top

Subsidiary 2
Benchmark Evaluation - 025SC09

Identification Section

Working Title: Food Scientist, Crops/Bakery

Department: Agriculture and Forestry

Division, Branch/Unit: Food Processing Development Division, Programs Branch

Reports To: Branch Head, Programs (Senior Manager)

Levels to D.M.: 4

Job Description: 025SC09

MRS: See the Minimum Recruitment Standards for Scientific

Job Code: 025SC - Scientific 3

Organization Chart
(requires login)

Evaluation

Knowledge
FI2 264

Creativity/Problem Solving
43% 115

Responsibility
C2 87

TOTAL JOB POINTS
466

Comments on Role

This position provides the leadership, industrial knowledge and scientific/technical expertise to industry and research partners in the areas of value added crops and bakery product research, development, and commercialization projects. The position is responsible for initiating, designing, and conducting projects which may include bench top development, pilot plant scale-up

Back to top

and management of the FPDC laboratories. The position will also lead the product development laboratory and provide consultation to industry in the areas of ingredients and labeling.

Working with processors throughout the province requires the position to have a comprehensive understanding of the scientific and technical aspects of baking and crops processing, as well as the skills necessary to interact with industry, research clients and partners. This position reports to the Branch Head of the Programs Branch and supervises support staff as required on a project basis.

Comments on Evaluation

- **Knowledge:**

Content:

- **F:** The Food Scientist requires specialized experience in the food processing industry and in food labeling. The position has in-depth knowledge of food science with a specialization in bakery products and production, cereals, milling and ingredient functionality. Knowledge of related laboratory instrumentation, food testing equipment and industrial food production equipment associated with baking and crops processing. The position also requires knowledge of pertinent legislation relating to the food industry (Food and Drug Act, Consumer Packaging and Labeling Act, HACCP, Good Manufacturing Practices, and WHIMIS) to be able to assist clients in getting their products to the market. Although the position has a narrow area of focus (bakery & crops), the knowledge of legislation and project management gives the position more breadth in its duties to indicate an 'F' in Content Knowledge. An E+ job would not be expected to have both the depth of knowledge in value added crops and bakery research combined with the breath of knowledge necessary to lead the product development laboratory which includes a large project management component.

Complexity and Diversity:

- **I:** The position is required to lead research teams, and complete complex scientific research (product and processing development) projects. The Food Scientist supervises technologist staff, project support staff, and is responsible for the efficient management of the Food Product Development Laboratory. The position must have an understanding of how the work relates to others within the division and to members of the bakery and crops processing industries.

Human Relations Skills:

- **2:** The Food Scientist, Crops/Bakery utilizes solid communication and influencing skills, as the position provides consultation and advice to individuals within the processing industry, and must be able to convey scientific information in a manner that is understood by non-scientific and non-technical people. The position is a leader in projects (overseeing the work of others) and provides public and technical presentations.

Back to top

- **Creativity/Problem Solving:**

  43%: The position must find and implement solutions to a variety of product and processing problems. It will also be involved in assessing and evaluating new products and technologies for alternative applications within the processing industry. Furthermore this position is also involved in complex activities such as designing research projects, analyzing and interpreting scientific data, preparing reports and writing scientific papers. It requires analytical abilities to write Standard Operating Procedures for new product development. Because the position is involved with new product lines, problems are less known and solutions are often unknown. A Food Scientist is responsible for identifying industry needs in terms of value-added processing, which goes beyond a '38%' in Creativity/Problem Solving and into a more strategic role.

- **Responsibility:**

  C2: Position is focused primarily on applied research relating to bakery and crops processing.

Last Reviewed: November, 2009

Alberta Government

Last Review / Update: 2016-03-11

Back to top

Subsidiary 2 Benchmark
Job Description - 025SC09

Identification Section

Working Title: Food Scientist, Crops/Bakery

Department: Agriculture and Forestry

Division, Branch/Unit: Food Processing Development Division, Programs Branch

Reports To: Branch Head, Programs (Senior Manager)

Levels to D.M.: 4

Purpose

(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.)

This position provides the leadership, industrial knowledge and scientific/technical expertise to industry and research partners in the areas of value added crops and bakery product research, development and commercialization projects. The position is responsible for initiating, designing, and conducting projects which may include bench top development, pilot plant scale up and management of the Food Processing Development Division (FPDD) laboratories. The position will also manage the product development laboratory and provide consultation to industry in the areas of ingredients, and labeling.

Working with processors throughout the province requires an individual with a comprehensive understanding of the scientific and technical aspects of baking and crop processing as well as the skills necessary to interact with industry and research clients and partners. This position reports to

Back to top

the Branch Head of the Programs Branch and supervises support staff as required on a project basis.

Responsibilities and Activities

(Each end-result/responsibility shows what the job is accountable for, within what framework and what the added value is.)

1. New Product Development/Technology Transfer

Initiate, design, conduct and direct developmental and commercialization projects relevant to Alberta's bakery processing industry. Specifically, with an emphasis on value-added processing:

Activities:

Identify and communicate to Alberta's food processing industry, opportunities for new products.
Evaluate project concepts and design, coordinate and conduct projects to meet the needs of Alberta's baking and crops processing industry for new products and technology developments.
Document experimental procedures, prepare reports, and interpret experimental results for industry clients.
Supervise and direct support personnel to complete client initiated projects.
Division contact for nutritional labeling and nutrient claim support.

2. Coordinate the efficient operation of the Food Product Development Laboratories.

Activities:

Assist/train scientists, technologists and clients in the calibration, maintenance and operation of a variety of laboratory (hplc, centrifuges, balances, data acquisition and nutrient software, balances, pH meters) and food testing equipment (instron, colorimeters, viscometers, etc.)

Back to top

Establish/write standard operating procedures for all laboratory and bench scale food processing equipment.
Documentation of testing protocols to ensure accuracy, precision and traceability.
Maintain laboratory WHMIS records, develop, maintain and document safe operating procedures.
Develop and maintain a laboratory equipment booking system.
Make recommendations and order laboratory equipment and supplies.
Assist/train scientists and technologists in setting up and conducting routine chemical/biochemical testing procedures as required.

3. Applied Research.

Activities:

Identify and prioritize research needs of the bakery processing industry through consultations with producers, processors, commodity organizations and other internal and external research scientists.
Evaluate new technologies to support value added processing by Alberta bakers and processors.
Conduct research aimed at enhancing the quality, marketability, shelf life and new uses for baking products.
Conduct experiments in a sound scientific manner so that results can be reliably analyzed, interpreted and reported in scientific papers and abstracts.

4. Liaison and Coordination.

Activities:

Maintain close liaison with Alberta's baking and crops processing industry and its customers. Lead/participate on theme project teams and committees as required. Support other sector/division projects, obligations and services as required.

Back to top

Scope

(Illustrates what internal or external areas the job impacts, and the diversity, complexity, and creativity of the job.)

Variety and Size of Projects:

Coordinates multiple projects on an ongoing basis. These projects are diverse in both variety and size.
Technical services and consultation are provided, identifying and implementing solutions to a variety of product and processing problems.
Applied research is conducted for clients and research partners representing many facets of the value-added processing.
Time frame for these projects ranges from short term, less than one month, to long term, one to three years. This position directly impacts the growth and diversity of value-added processing and investment in the province, resulting in improved market access and increased global competitiveness of Alberta's Agriculture and Food Industry.

Impacts:

Internal/AF: Source of technical expertise and information for department staff. Contributes to sector and theme strategic priorities and division revenue generation.
External: Producer groups and industry organizations, universities, private industry both large and small and research and technology organizations. External clients can range from individual entrepreneurs to multi-national corporations.
The impact of the FPDD work can be seen in the introduction of numerous new products to the market each year, the assessment and introduction of new technologies, and the start up of new companies annually.

Knowledge, Skills and Abilities

Back to top

(Diplomas, degrees and the most important knowledge factors, skills and abilities including knowledge about practical procedures, specialized techniques, etc.; analytical and conceptual skills and abilities; and skills needed for direct interaction with others. Specific training if it is an occupational certification/registration required for the job.)

Education:
Bachelor's Degree in Food Science or related field.

Experience:

Six years experience in the food processing industry with specific experience in baking and labeling.

Knowledge:

Specialized knowledge of bakery products and production, cereals, milling, and ingredient functionality.
Knowledge of the laboratory instrumentation, food testing equipment and industrial food production equipment associated with the baking and crops processing industry.
Knowledge of food chemistry, microbiology, analytical techniques, product quality assessment, and scientific research principles.
Knowledge of *Food and Drug Act* and Regulations, the *Consumer Packaging and Labeling Act, HACCP (Hazard Analysis Critical Control Points), GMP (Good Manufacturing Practices)* **and** *WHMIS (Workplace Hazardous Materials Information System).*
Ability to pursue independent scientific research and/or to design and conduct relevant experiments as part of an interdisciplinary research team.

Skills and Abilities:

Project management skills.
Excellent writing, verbal and listening communication skills as incumbent is in direct contact with senior industry clients and management, research personnel and production staff.
Leadership skills with the adaptability and flexibility to work in a team environment for the common project goal.

Back to top

Ability to liaise with industry, research and AF partners to promote Division capabilities, develop collaborative projects and build effective research and developmental project teams.
Ability to conduct independent and innovative research and analysis.

Contacts

(Main contacts of this position and the purpose of those contacts.)

Industry clients – to act as project leader for industry initiated projects.
Research partners, industry organizations, and funding agencies – to initiate and lead or support applied research projects, solicit funding and support from appropriate partners.
AARD staff – to liaise with other departmental staff on common goals and research/theme priorities.
Industry clients – to act as project leader for industry initiated projects, identify priorities, provide information services.
Research partners, industry organizations, and funding agencies – to initiate and lead or support applied research projects, solicit funding and support from appropriate partners.

Supervision Exercised

(List position numbers, class titles, and working titles of positions directly supervised.)

The position must have the supervisory skills to manage a food product development laboratory, client activities, project technologists and the work of personnel hired for research projects.

Alberta Government

Last Review / Update: 2016-03-11

Back to top

Subsidiary 2
Benchmark Evaluation - 025SC06

Identification Section

Working Title: Senior Museum Scientist

Department: Culture and Tourism

Division, Branch/Unit: Heritage Division, Royal Tyrrell Museum, Preservation and Research

Reports To: Director, Preservation and Research (Senior Manager 1)

Levels to D.M.: 4

Job Description: 025SC06

MRS: See the Minimum Recruitment Standards for Scientific

Job Code: 025SC - Scientific 3

Organization Chart
(requires login)

Evaluation

Knowledge
FI2 264

Creativity/Problem Solving
38% 100

Responsibility
B 100

TOTAL JOB POINTS
464

Comments on Role

The Senior Museum Scientist ensures the preservation, protection and presentation of Alberta's fossil resources through the development of a research program that leads to the collection of significant vertebrate fossils and to an increased understanding of Alberta's unique fossil heritage. Knowledge gained through original scientific research contributes to exhibit

Back to top

and public programs of the museum to ensure that the information presented to the public is current and accurate. As head of the research section, the incumbent is also responsible for coordinating the research programs of the museum.

Comments on Evaluation

- **Knowledge:**
  Content:

    - **F:** Position requires PhD level knowledge of vertebrate palaeontology, with specialization relating to the vertebrate palaeontological resources of Alberta. Knowledge of collections management, including analytical and laboratory techniques used in palaeontology such as mechanical and chemical preparation, and analytic tools currently used in palaeontology is required. Position also requires knowledge of department, division, and branch business plans. In addition to the knowledge required for the research done by this position, it also requires a thorough knowledge of the research programs in the section (Dinosaurs, Sedimentary Geology, Palaeoherpetology, Mammals, Palynology, and Dinosaur Palaeoecology) in order to provide leadership to these programs. The specialized knowledge this position must possess in the area of vertebrate palaentology combined with the breath of knowledge required to lead/supervise various research programs push this job to an F rating; a E+ job would not be expected to have both the depth of knowledge in a specialized area coupled with the breath of knowledge needed to lead research programs.

Complexity and Diversity:

- **I:** This position supervises six museum scientists that are respectively Curators of Dinosaurs, Sedimentary Geology, Palaeoherpetology, Mammals, Palynology, and Dinosaur Palaeoecology as well as one technical (Scientific Illustration) position. This position also performs research and manages a collection of fossils in order to ensure documentation of the non-dinosaur fossil record for the benefit of all Albertans. Position must also consider and understand how its work impacts museum programming as well as the Alberta public when contributing to museum educational, interpretive and programming activities and resource materials.

Human Relations Skills:

- **2:** The incumbent uses a high level of interpersonal skills in the supervision and leadership of research and technical staff. Position must also use persuasion in representing the Museum in the presentation of research results at scientific meetings, when serving on the executive and/or committees of professional organizations and in providing advice and consultation to contractors undertaking historical resource impact assessments.

Back to top

- **Creativity/Problem Solving:**

38%: The major focus of this position is to conduct independent research for publication in reputable scientific journals of non-dinosaur palaeontological fossils of Alberta. This includes setting the direction of its research program within clearly defined objectives and interpreting findings. The highest level of operational thinking is required in order to analyze the current collection, define and design research projects, and to collect, interpret and present results. Position must also apply critical thinking and analysis in coordinating preparation priorities from the research programs in the section and ensure that research activities of the curators are consistent with goals and objectives of the Museum's mandate. Position is not seen to be at the 43% as it is not expected to identify, define and resolve problems that are often non-conforming without clear precedent, for the most part solution to problems faced by this position can be found within a known body of knowledge or based on experience.

- **Responsibility:**

B: The position has a strong focus on development and research, but also manages a research program, provides leadership and coordination to six other research programs, supervises staff and contributes to the delivery of museum programming. Overall, this position strikes a balance between development and implementation.

Last Reviewed: November, 2009

Alberta Government

Last Review / Update: 2016-03-11

Back to top

Alberta

Subsidiary 2 Benchmark
Job Description - 025SC06

Identification Section

Working Title: Senior Museum Scientist

Department: Culture and Tourism

Division, Branch/Unit: Heritage Division, Royal Tyrrell Museum, Preservation and Research

Reports To: Director, Preservation and Research (Senior Manager 1)

Levels to D.M.: 4

Purpose

(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.)

The Senior Museum Scientist ensures the preservation, protection and presentation of Alberta's fossil resources through the development of a research program that leads to the collection of significant vertebrate fossils and to an increased understanding of Alberta's unique fossil heritage. Knowledge gained through original scientific research will contribute to exhibit and public programs of the museum to ensure that the information presented to the public is current and accurate. As head of the research section, the incumbent is also responsible for coordinating the research programs of the museum.

The job performs working level scientific work and the incumbent has been recognized for personal scientific achievement. This specialized research position has a major emphasis on planning; conducting and supervising leading edge research projects relating to fossil vertebrates. The job includes the development of partnerships with other scientists internationally and is required to publish research results in scientific publications and/or through seminars, conferences and workshops. Knowledge gained through original scientific research will contribute to exhibit and public programs of the museum to

Back to top

ensure that the information presented to the public is current and accurate. As head of the research section, the incumbent is also responsible for coordinating the research programs of the museum.

Responsibilities and Activities

(Each end-result/responsibility shows what the job is accountable for, within what framework and what the added value is.)

1. **Conducts independent original research for publication in reputable scientific journals on aspects of the vertebrate palaeontology of the Cretaceous of Alberta within the framework of the Branch Business Plan to lead to a more detailed understanding of the animals giving rise to the fossil remains, the settings in which they were preserved, and their context in a global setting.**

   Activities:

   Researches fossil vertebrates of Alberta.
   Establishes and maintains contact with palaeontologists with similar research interests.
   Facilitates the dissemination of research results through the scientific community through organizing, and participating in, symposia and field trips, and presenting technical papers to learned societies and bodies at scientific meetings.
   Publishes the results of research projects in scientific publications.

2. **Maintains a field program in support of the research program and museum collections within the framework of the Royal Tyrrell Museum Business Plan to lead to the preservation of Alberta's fossil record, and to collect data that will lead to an understanding of, and appreciation for, Alberta's fossil record.**

   Activities:

   Plans, organizes and implements fieldwork related to the research on fossil vertebrates from Alberta.
   Collects fossils of scientific research from field area.
   Responds to reports of occurrences of vertebrate fossils from the public.
   Participates in the supervision of graduate students.

Back to top

3. **Within the Ministry goals and Branch business plan, ensures proper preservation, preparation, and curation of vertebrate fossils in order to document and provide lasting evidence of fossil record of Alberta.**

   Activities:

   Supervises technicians in the preparation and preservation of vertebrate fossils.
   Provides collection management with identification and documentation of non-dinosaur vertebrate fossil resources.
   Establishes priorities for nature and scope of fossil vertebrate collections.
   Establishes value and significance of vertebrate fossils in determining which specimens should be accessioned into formal collection.

4. **Participates in the resource management program within the framework of the Historical Resources Act to lead to the preservation of fossil resources that would otherwise be lost as a result of development activities.**

   Activities:

   Reviews historical resource impact assessments.
   Provides advice and consultation to contractors undertaking historical resource impact assessments.
   Provides advice and consultation to branch and divisional resource management teams.

5. **Contributes to public programs of the museum within the framework of the Branch Business Plan to ensure that information provided to the public is accurate and topical.**

   Activities:

   Contributes to the development of exhibits by providing information content and selecting specimens for exhibit.
   Participates in staff training activities for educational and interpretation staff, particularly the summer staff.
   Ensures the scientific accuracy and topicality of educational products, including books, pamphlets, videos, games, and education programs.
   Works with volunteers to educate involved members of the public in the procedures and processes of field-based research activities.
   Participates in fundraising presentations in support of exhibit developments.

6. **Responds to inquiries from the public and media to ensure information is accurately communicated.**

Back to top

Activities:

Talks to special interest groups.

Interacts with media in reporting new discoveries of the Royal Tyrrell Museum and responds to questions relating to the discoveries in the area of specialization by other institutions (this includes newspaper interviews, television, radio and documentary films).

Responds to e-mail requests for information of vertebrate palaeontology.

7. **Participates in activities of the national and international scientific community within the context of the Branch Business Plan.**

Activities:

Organization of scientific conferences in area of study.

Presentation of research results at scientific meetings.

Serve on the executive and/or committees of professional organizations.

Reviewer of national and international grant proposals (e.g. NSF, National Geographic).

Reviewer of manuscripts submitted for publication in scientific journals.

Participate in training graduates students and supervises student research projects relating to the fossil resources of Alberta.

8. **Acts as head of the Research Program of the Royal Tyrrell Museum within the context of the Royal Tyrrell Museum organizational chart to ensure that research activities of the curators are consistent with goals and objectives of the Museum's mandate.**

Activities:

Coordinates the budget requests of the research programs.

Tracks budget expenditures.

Reports on the research activities of the curators to other museum programs.

Coordinates preparation priorities from the research programs.

Scope

Back to top

(Illustrates what internal or external areas the job impacts, and the diversity, complexity, and creativity of the job.)

The Royal Tyrrell Museum has become a leader in research on Late Cretaceous vertebrate assemblages, with the development of particular expertise on the diversity, distribution, and palaeoecology of vertebrate assemblages. Researchers at the Royal Tyrrell Museum regularly publish in peer-review scientific journals and present results of research activities of the museum's programs at scientific meetings nationally and internationally. Symposia on special topics have been organized by the researchers, and several of these have resulted in published volumes presenting the results of the symposia.

Variety and size of projects: Provides research leadership and coordinates long-term multi-disciplinary research projects in area of expertise. Must develop research projects from inception to completion, leading to publication of results in scientific literatures. Must effectively present research results to both the scientific and public communities through a variety of traditional and new media techniques. This requires:

the ability to deal with multiple projects, shifting priorities and tight timelines;
good technical writing skills;
good public speaking skills;
strong interpersonal and communications skills;
a thorough knowledge of computer usage, particularly of PAUP and other statistical programs used for data analysis; and
a thorough knowledge of current research techniques.

This position requires critical analytical thinking in the development and successful completion of research projects.

Partnerships and adjunct appointments at the University of Calgary and University of Alberta result in collaborative work with professors at the university and allow the museum curators to participate in supervision of graduate students in vertebrate palaeontology.

Stakeholders: Education, exhibit, preservation, and marketing programs at the Royal Tyrrell Museum, academic palaeontologists nationally and internationally, members of the public involved in activities related to palaeontology.

Interactions with other government departments, including energy, highways, environment, and private sector industries including petroleum and mining industries on the potential impact on historical resources leads to preservation of the fossil resources of the province.

Back to top

Knowledge, Skills and Abilities

(Diplomas, degrees and the most important knowledge factors, skills and abilities including knowledge about practical procedures, specialized techniques, etc.; analytical and conceptual skills and abilities; and skills needed for direct interaction with others. Specific training if it is an occupational certification/registration required for the job.)

The position will have a PhD in vertebrate palaeontology, with an area of specialization relating to the vertebrate palaeontological resources of Alberta, plus a minimum of 2 years related experience.
The position will have knowledge of analytical and laboratory techniques used in palaeontology including mechanical and chemical preparation, and analytic tools currently used in palaeontology.
The position will have knowledge of the research activities undertaken in the section and how these plans jointly lead to a better understanding of the paleontological resources of the province.
The position will have proven skills in written communication with emphasis on scientific writing for popular and professional audiences.
The position will have proven skills to budget for, organize, and supervise field-based expeditions in vertebrate palaeontology.
The position will have an aptitude for oral communication, and will be able to explain scientific concepts to public, media and professional audiences.
The position will have strong interpersonal skills that will allow him to motivate a wide variety of staff and interact with public, e.g. land owners, visitors requesting information, media, dignitaries, etc.
The position will have an extensive knowledge of the palaeontological resources of Alberta.
The position will have the ability to get research grants and external funding in support of research projects.
The position will have knowledge of federal and provincial legislation protecting palaeontological resources in Alberta.
The position will have outdoor skills and experience working in remote and physically demanding field conditions including alpine, high arctic, and desert environments.
The position will have knowledge of department, division, and branch business plans.
The position will have the ability to develop and follow budgets for program activities and will have knowledge of budget policies and procedures and administrative procedures and protocol.

Contacts

Back to top

(Main contacts of this position and the purpose of those contacts.)

Clients	Frequency	Nature and Purpose of Contact
Internal		
Executive Director	Periodically	Integration of research programs with other museum programs, including education and design to ensure that the information presented to the public is accurate and up to date.
Director Preservation and Research	Daily	State of the art presentation of the palaeontological story of Alberta, successful communications and marketing strategies. State of the art educational and interpretation programs including curriculum fit and distance learning. Business and financial operations. Preservation and presentation of fossil resources, resource management administration. Implementation of field and research programs to enhance public appreciation and understanding and to develop data base for resource management
Office Manager	Monthly	
Program Staff	Daily	Maintain control of section budget
External		
Cooperating Society	Monthly	Efficient and effective program delivery
Research staff in other museums	Weekly/Monthly	Maintain their ongoing support of, and participation in, Research and

Back to top

		preservation programs; Develop funding and general support base
Colleagues locally and in foreign countries	Periodically	Collaborate on research, exhibitions, education programs, scientific exchanges, museological issues.
Provincial national and international academic institutions	Monthly	Negotiate arrangement on scientific exchanges and cooperative research.
Professional, amateur and commercial collectors of fossil resources	Periodically	Facilitate research and educational opportunities. Provide advice and assistance to post-secondary institutions. Furthering knowledge of Alberta, use of RTMP collections, access other collections
Environmental Protection Regulatory staff	Weekly/Monthly	Provide leadership in managing the province's internationally-important palaeontological resources
Media	Periodically	Provision of expert information on environmental/palaeontological impacts of development projects
Public	Weekly	Promote the Museum and its programs. Resolve negative or sensitive issue Provision of educational material; access to information

Supervision Exercised

(List position numbers, class titles, and working titles of positions directly supervised.)

Back to top

The Senior Museum Scientist supervises the following positions within the Research Programs unit:

Curator of Dinosaurs, Scientific 2, 00024209

Curator of Sedimentary Geology, Scientific 2, 00024212

Curator of Dinosaur Palaeoecology, Scientific 2, 00024211

Curator of Palaeoherpetology, Scientific 2, 00024232

Curator of Mammals, Scientific 2, 00024226

Curator of Palynology, Program Services 4, 00024213

Scientific Illustration Technologist, Information & Creative Technical Services 2, 00024210

Alberta Government

Last Review / Update: 2016-03-11

Back to top

Subsidiary 2
Benchmark Evaluation - 025SC10

Identification Section

Working Title: Veterinary Microbiology Scientist

Department: Agriculture and Forestry

Division, Branch/Unit: Food Safety Division, Agri-Food Laboratories Branch/Biology Section

Reports To: Biology Section Head (Senior Manager)

Levels to D.M.: 5

Job Description: 025SC10

MRS: See the Minimum Recruitment Standards for Scientific

Job Code: 025SC - Scientific 3

Organization Chart
(requires login)

Evaluation

Knowledge
FI2 264

Creativity/Problem Solving
38% 100

Responsibility
B 100

TOTAL JOB POINTS
464

Comments on Role

This position supervises the delivery of the Agri-Food Laboratories Branch services to the poultry and egg producing facilities of Alberta in support of national programs dealing with trade issues, flock health and food safety concerns. As the senior scientist, the position plans, directs, implements, conducts, documents and presents bacteriological studies in food safety and animal health diagnostics, surveillance and research. The senior scientist is accountable for the operation, performance and

Back to top

safety of the Veterinary Microbiology Laboratory staff and the Parasitology Laboratory staff. Additionally, the position supervises the delivery of diagnostic services to veterinary practitioners and bacteriological disease investigation services to Food Safety Division investigators.

Comments on Evaluation

- **Knowledge:**
  Content:
    - **F:** The Veterinary Microbiology Scientist requires a high level of academic knowledge, with a Ph.D in a discipline such as Microbiology being preferred. Position must have specialized knowledge in bacteriology and of research methodologies (especially as it relates to bacteriologic isolation and identification procedures); going beyond having a theoretical understanding of principles and concepts, which are seen at the 'E' and 'E+' levels of content knowledge. Position does not meet the requirements for an 'F+' in content knowledge because the area of focus is in a narrow field for the Ministry.

  Complexity and Diversity:

    - **I:** Position understands how the direction of the unit contributes to the goals of the Division and Ministry, how investigation and research results can effect the agriculture industry, and is responsible for the administrative procedures of the unit (i.e. knowledge of Ministry budget process, Ministry performance management system, business planning cycles, etc.). Position is a full individual contributor that coordinates the efforts of a small unit in a focused area of expertise.

  Human Relations Skills:

    - **2:** The Veterinary Microbiology Scientist supervises 5 staff members and has frequent interaction with stakeholders around testing of products, research projects, investigations, and reporting. The leadership of the unit results in a '2' for Human Relation Skills.

- **Creativity/Problem Solving:**

  38%: This position is involved in research projects where new programs, policy, procedures, etc. are being developed. A good portion of the position's duties center around surveillance testing, analysis, and reporting results back to investigators and stakeholders. The position has been rated at a 38% problem solving because for the most part the problems this position faces are known however it is the solutions that still need to be identified. Although this position has operational leadership

Back to top

over a unit, it is not solely or directly accountable for its strategic direction which would have moved this position to a 43% rating.

- **Responsibility:**

  B: Position has a combination of research/analysis components as well as responsibility for the delivery of surveillance programs, resulting in a balanced profile.

Last Reviewed: November, 2009

Alberta Government

Last Review / Update: 2016-03-11

Back to top

Subsidiary 2 Benchmark
Job Description - 025SC10

Identification Section

Working Title: Veterinary Microbiology Scientist

Department: Agriculture and Forestry

Division, Branch/Unit: Food Safety Division, Agri-Food Laboratories Branch/Biology Section

Reports To: Biology Section Head (Senior Manager)

Levels to D.M.: 5

Purpose

(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.)

This position supervises the delivery of the Agri-Food Laboratories Branch services to the poultry and egg producing facilities of Alberta in support of national programs dealing with trade issues, flock health and food safety concerns. Additionally, the position supervises the delivery of diagnostic services to veterinary practitioners and bacteriological disease investigation services to Food Safety Division investigators. The senior scientist is accountable for the operation, performance and safety of the Veterinary Microbiology Laboratory staff and the Parasitology Laboratory staff.

As the senior scientist, the position plans, directs, implements, conducts, documents and presents bacteriological studies in food safety and animal health diagnostics, surveillance and research. Major responsibilities include:

leadership of bacteriology components of numerous projects

maintaining, aligning and/or establishing bacteriological protocols to meet or exceed approved standards that ensure quality of results

Back to top

project planning, implementation, data development, analysis, synthesis, reporting results to stakeholders, and contributing to peer reviewed publications

The position maintains leading-edge knowledge in bacteriology disciplines. The position's activities ultimately lead to disease-free products from animal producers in Alberta, which affects human health, and makes our meat products marketable on the world marketplace.

Responsibilities and Activities

(Each end-result/responsibility shows what the job is accountable for, within what framework and what the added value is.)

1. **Provide operational leadership, scientific leadership, and technical supervision in order to provide accurate results and a timely workflow within a safe environment.**

   Activities:

   Hiring of qualified technical staff.
   Coordinate training / train staff.
   Assessing staff performance.
   Supervising technical work within the laboratory to ensure accurate results.
   Monitoring workload to ensure effective and timely workflow and reporting of results.

2. **Providing accurate reporting and information to clients requires extensive bacteriological knowledge in infectious agents related to animal and human disease agents, and knowledge of the procedures for testing and identifying the bacterial organisms.**

   Activities:

   Sharing knowledge of all pertinent test procedures and recent developments for accurate isolation and identification of bacterial pathogens.
   Troubleshooting bacterial identification of unusual and difficult to identify organisms.
   Implementing/supervising antimicrobial sensitivity testing of selected bacterial organisms to certain antibiotics.

Back to top

Maintaining the diagnostic capability as the main government Veterinary Laboratory responsible for performing diagnostic identification procedures not available elsewhere in the province.

Ensure that all equipment is maintained properly and maintenance records up to date.

3. **Conduct research and surveillance projects, collate and analyze data, and contribute to writing articles for submission to scientific journals in support of Food Safety Division surveillance goals; ultimately resulting in healthier animals, higher production yields, better food quality and reduced zoonotic infections.**

Activities:

Obtain and review all relevant literature information for each project.

Develop protocols and implement specific tests relating to the project at hand.

Trial new protocols to ensure high sensitivity and specificity before implementation.

Responsible for accurate results.

Compile, analyze data and prepare report for bacteriology portion of scientific papers.

Presentation of project data.

4. **Supervise the delivery of the Veterinary Microbiology Laboratory services to industry, FSD leaders, and other stakeholders. The goal is to ensure healthy flocks and herds assuring market access for the producers and safe foods for the consumers.**

Activities:

Supervise processing, analyzing and reporting of all laboratory findings.

Main contact in regards to communication with external clients.

Trouble-shoots any issues or concerns arising between the stakeholders and the laboratory.

Adapt, design, and modify new or existing protocols to suit new situations, studies or disease investigations.

5. **Participation in strategic and operational planning within Agri-Food Laboratories Branch and the Food Safety Division.**

Activities:

Meet bi-weekly with the Biology Section's Scientists to discuss and decide sectional issues, needs and project planning issues.

Back to top

Meet with the staff to make them aware of Branch and Section issues and to gain feedback from them on issues relating to projects, quality system, and section or branch issues.
Contribute to Quality Assurance by writing SOP's and implementing a Q.A. System to maintain Food Safety Division's ISO 17025 accreditation.
Contribute to the development of the business plans of the Branch and the Division.

6. **Ensure that Quality Assurance is carried out for all procedures in the laboratory so that all conditions are met for the reporting of accurate results.**

Activities:

Have complete knowledge of, and ensure adherence to, accepted lab standards according to organizations such as OIE, ISO 17025, NCCLS and CAP to ensure quality results.
Establish and maintain Standard Operating Procedures (SOP's) for all bacterial tests, media and equipment to meet accreditation guidelines.
Ensure daily Quality Control is carried out, documented and readings are within acceptable limits.

7. **Manage budgets allotted to the Microbiology Work Unit by AFLB and various project partners, being as economical as possible without affecting the quality of results.**

Activities:

Select & obtain preferred pricing from various venders which includes lab supplies & equipment purchases.
Calculate project costs.
Monitoring projects to ensure that costs stay within allocated budgets.

Scope

(Illustrates what internal or external areas the job impacts, and the diversity, complexity, and creativity of the job.)

Supervises 4 full-time and 1 half-time technical staff specializing in veterinary microbiology and parasitology, as well as additional temporary staff hired for specific projects.

Back to top

Controls, conducts, and directs the veterinary microbiology and parasitology components of Disease Investigations, research and surveillance projects for the Agri-Food Laboratories Branch; ultimately assisting in improved food animal health, increased production and continued or expanded market access for Alberta produced products.

Project size varies from hundreds to thousands of samples for a wide variety of bacterial pathogens including, but not limited to: Salmonella, Campylobacter, Listeria, E. coli O157:H7, and Mycobacteria. Samples may be concurrently tested for multiple pathogens.

Targeted species include cattle, swine, sheep, goats, bison, and poultry and the sample matrix varies from environmental to tissues to fecal materials. Each species and sample type presents unique testing complications that must be addressed prior to the start of each project.

Must keep current with emerging issues is food safety and animal health locally and worldwide that may affect our food and animal industries. Laboratory instrumentation, facilities and procedures must be constantly updated to ensure that known and new or emerging bacterial agents can be effectively and accurately detected.

Knowledge, Skills and Abilities

(Diplomas, degrees and the most important knowledge factors, skills and abilities including knowledge about practical procedures, specialized techniques, etc.; analytical and conceptual skills and abilities; and skills needed for direct interaction with others. Specific training if it is an occupational certification/registration required for the job.)

Ph.D. in a scientific discipline like molecular biology, plus 2 years of related laboratory experience. Previous supervisory experience is an asset. **Equivalency:** Masters degree, DVM or MD plus 4 years related experience; or University graduation in a related field, plus 6 years related experience.

Expertise and extensive experience in bacteriologic isolation and identification procedures and general knowledge of related lab fields.

Extensive background knowledge in bacteriology and a working knowledge of parasitology and molecular biology.

A working knowledge of food microbiology isolation and processing techniques and the interpretation of food related data.

Communication skills for interaction with peers, co-worker and research/surveillance partners.

Strong, self-motivated team player - ability to work cooperatively with others, integrate and coordinate activities within the lab section and research/surveillance partners.

Organizational and Project Management skills.

Back to top

Knowledge of government budget/accounting procedures.

Able to assimilate, understand, scrutinize and apply new information from scientific literature and from other available sources for research/surveillance.

Able to interpret, collate, document and present experimental data and results.

Have an operational knowledge and understanding of the equipment and instrumentation used within the bacteriology lab.

Contacts

(Main contacts of this position and the purpose of those contacts.)

Examples of Main Contacts

Director of Alberta Egg Producers Board: Ensure close cooperation with industry pertaining to reporting and investigations.

Collector /field man on contract with the Alberta Egg Producers Board: Coordinate sampling and analysis.

Program coordinator with the Chief Provincial Veterinarian's Office: Reporting results and assist with disease investigations.

Poultry Pathologist with ARD: Reporting results. Assist with disease investigation and research projects.

Maple Leaf Hatchery: Ensure close cooperation with industry pertaining to reporting and investigations.

Poultry Specialist with ARD: Reporting results, coordinate research and delivery of programs.

Supervision Exercised

(List position numbers, class titles, and working titles of positions directly supervised.)

Position Number	Class Titles	Working Title
00000488	Technologies 4	Veterinary Microbiology Technologist
00000453	Technologies 4	Veterinary Microbiology Technologist
00044406	Technologies 4	Veterinary Microbiology Technologist
00000477	Technologies 4	Veterinary Microbiology Technologist
00000440	Technologies 4	Parasitology Technologist

Last Review / Update: 2016-03-11

Back to top

Subsidiary 2
Benchmark Evaluation - 024SC08

Identification Section

Working Title: Curator of Quaternary Palaeontology

Department: Culture and Tourism

Division, Branch/Unit: Heritage Division, Royal Alberta Museum, Curatorial and Collections Preservation, Landscape Studies Section

Reports To: Section Head, Landscape Studies (Scientific 3)

Levels to D.M.: 5

Job Description: 024SC08

MRS: See the Minimum Recruitment Standards for Scientific

Job Code: 024SC - Scientific 2

Organization Chart
(requires login)

Evaluation

Knowledge
E+I2 230

Creativity/Problem Solving
38% 87

Responsibility
B 87

TOTAL JOB POINTS
404

Comments on Role

The Curator of Quaternary Palaeontology acts to increase the knowledge and appreciation of Quaternary palaeontology (including systematics, biodiversity and palaeoenvironmental reconstruction) with a concentration on Quaternary vertebrates as it pertains to Alberta within a global context, in support of the Historical Resources Act (Revised Statutes 2000) and the

Back to top

Royal Alberta Museum Business Plan, through independent scientific research, co-ordination of research teams, interdisciplinary research, fieldwork, development of collections, communication of results through scholarly and popular publications, and identification of collection and research opportunities, to ensure documentation of Ice Age fossil record for the benefit of all Albertans.

Comments on Evaluation

- **Knowledge:**
  Content:

    - **E+:** Position requires specialized knowledge (or equivalent) of Palaeontology (either from Biological or Geological Sciences program) and expert knowledge of global-level taxonomy of at least one major group of vertebrate organisms relevant to discipline in Alberta with an emphasis on phylogenetic or specimen-based analysis and substantive publication record in systematic and palaeontological analysis. Also requires knowledge of collections management, including curatorial techniques needed to collect, prepare, care for, handle, conserve, and organize subfossil and fossil palaeontological specimens. Position must have knowledge of discipline-specific techniques (e.g., microscopy, SEM, DNA, radiometric dating, etc.) as well as analytical, database, Internet and word processing software. The requirement of specialized knowledge in a specific specialization warrants the E+ rating. The position is not seen to have the depth and breadth of knowledge required at the F level, as the scope of the knowledge is specific to Quaternary Palaeontology; the breath of knowledge in Landscape Sciences (F) is credited to the position's supervisor (Scientific 3).

Complexity and Diversity:

- **I:** This position performs research and manages a collection of fossils in order to ensure documentation of Ice Age fossil record for the benefit of all Albertans. Position must also consider and understand how its work impacts museum programming as well as the Alberta public when contributing to museum educational, interpretive and programming activities, as well as in the development of educational materials and on-line exhibits and publications.

Human Relations Skills:

- **2:** The incumbent uses a high level of interpersonal skills in the supervision and leadership of technical and research staff. Position must also use persuasion in representing the Museum on regional, national and international boards, agencies, and professional societies and in providing advice to industry (e.g., gravel pit operators, surface mining, HRIA consultants) and government concerning Quaternary fossil discoveries, and HRIAs with respect to the Historical Resources Act.

Back to top

- **Creativity/Problem Solving:**

  38%: Position conducts independent research for publication in reputable scientific journals of the Quaternary palaeontological fossils of Alberta. This includes setting the direction of the research program (in consultation with the position's supervisor) within clearly defined objectives and interpreting findings. The highest level of operational thinking is required in order to analyze the current collection, define and design research projects, and to collect, interpret and present results. Position utilizes established techniques/technology to conduct analysis of specimens (e.g. morphometrics, molecular and biochemical analysis, radiometric dating, scanning electron microscopy, etc.). This position is rated stronger than a 33% as it is expected to identify solutions throughout the research process.

- **Responsibility:**

  B: The position has a strong focus on development and research, but also leads a research program, supervises staff and contributes to the delivery of museum programming. Overall, this position strikes a balance between development and implementation.

Last Reviewed: November, 2009

Alberta Government

Last Review / Update: 2016-03-11

Back to top

Alberta

Subsidiary 2 Benchmark
Job Description - 024SC08

Identification Section

Working Title: Curator of Quaternary Palaeontology

Department: Culture and Tourism

Division, Branch/Unit: Heritage Division, Royal Alberta Museum, Curatorial and Collections Preservation, Landscape Studies Section

Reports To: Section Head, Landscape Studies (Scientific 3)

Levels to D.M.: 5

Purpose

(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.)

The Curator of Quaternary Palaeontology acts to increase the knowledge and appreciation of Quaternary palaeontology (including systematics, biodiversity and palaeoenvironmental reconstruction) with a concentration on Quaternary vertebrates as it pertains to Alberta within a global context, in support of the Historical Resources Act (Revised Statutes 2000) and the Royal Alberta Museum Business Plan, through independent scientific research, co-ordination of research teams, interdisciplinary research, fieldwork, development of collections, communication of results through scholarly and popular publications, and identification of collection and research opportunities, to ensure documentation of Ice Age fossil record for the benefit of all Albertans. The Curator provides advice to industry (e.g., gravel pit operators, surface mining, Historical Resource Impact Assessment (HRIA) consultants), and government (e.g., reviews HRIAs) concerning Quaternary fossil discoveries with respect to the Historical Resources Act.

Back to top

The Curator provides opportunities for Albertans to become informed about Quaternary Palaeontology, through exhibition development, presentation of lectures and workshops, development of online resources, and provision of professional and public access to collections. The Curator supervises a Curatorial Assistant (Information and Creative Technical Services 5) position and may supervise contractors and other scientists as a team leader, may supervise graduate students and volunteers, writes grant proposals to fund research, sits on provincial and national advisory committees when opportunities arise, and provides leadership, direction and support in the operation of the research program and Palaeontology Laboratory, while ensuring compliance with relevant Occupational Health and Safety legislation in the field and in the workplace.

Responsibilities and Activities

(Each end-result/responsibility shows what the job is accountable for, within what framework and what the added value is.)

1. **Within the scope of the Branch and Ministry business plan, increases knowledge or participates in teams that increase knowledge of the Quaternary palaeontological record of fossils of Alberta within a global context through independent scientific research, coordination of research projects, and/or interdisciplinary research.**

   Activities:

   In consultation with the Section Head, sets the direction of the research program to guide planning of research proposals and development of collections.
   Plans, seeks funding, writes grants, conducts field and laboratory research, performs analyses, interprets findings, publishes and presents results.
   Conducts analysis of specimens as part of research including, but not limited to morphometrics, molecular and biochemical analysis, radiometric dating, scanning electron microscopy, computed axial tomography, laser scans, x-ray spectrometry, etc.
   Participates as a member of, or leads, interdisciplinary teams to design and conduct scientific research, including supervision of graduate students and volunteers as opportunities arise.

Back to top

2. **Within the mandate of the museum, develops or leads teams in order to develop the specimen-based collections to document and provide verifiable evidence of the Quaternary fossil record as it pertains to Alberta within a global context.**

   Activities:

   Prepares and preserves fossil specimens generated by research projects and field collecting.
   Promotes role of Museum as a repository for specimens from private collections and public institutions where applicable.
   Conducts field collections to acquire specimens to fill in evolutionary, spatial, or temporal gaps in the collections.
   Ensures that appropriate spatial, temporal, biological and taxonomic documentation is associated with specimens and entered into program database.
   Negotiates partnerships with industry to acquire specimens as they are discovered (e.g., gravel pit operators).

3. **Ensures the Quaternary fossil records are effectively managed and conserved within the best practices and theories of collection management to deliver a lasting and valuable collection.**

   Activities:

   Maintains and provides access to database of information associated with specimens in collection, including developing and ensuring database standards are maintained to facilitate intra-governmental and intergovernmental agency data sharing where appropriate.
   Oversees loans, exchanges, or purchases (of replicate specimens only) with other institutions and individuals.
   Ensures curation of the collections.
   Identifies and implements advances in database technology as it pertains to improving access to Quaternary Palaeontological information for Albertans.

4. **Within the context of the Branch business plan, initiates, plans and develops or provides expert advice for Museum exhibits and programming in order to ensure accuracy and consistency in the information being displayed to Museum visitors.**

   Activities:

   Contributes to storyline development and writes exhibit text.
   Selects specimens from collection for display, ensures preparation and conservation before display.

Back to top

Identifies sources for materials related to planned exhibitions, including casts, specimens, images.
Participates in museum educational, interpretive and programming activities, including Museum School, and contributes to development of educational materials and on-line exhibits and publications.
Identifies external opportunities to further Museum Business Plan as it pertains to the Quaternary fossil record.
Recommends sectional policy regarding scientific discipline or museological issues, including participating in yearly business planning and facility strategic planning.

5. **Within the goals of the Ministry and Branch, provides outreach to the public and scientific community in order to communicate knowledge to inform and educate Albertans.**

Activities:

Delivers lectures and prepares manuscripts for publication.
Acts as a peer reviewer for research proposals, funding applications, and scholarly publications.
Responds to public enquiries.
Provides expert identification of specimens, including threatened or endangered species, within areas of expertise

6. **Within the mandate of the Museum, contributes to a collaborative and informed community by establishing and maintaining partnerships and networks within scientific discipline.**

Activities:

Participates on provincial, national and international boards, agencies, and professional societies.
Negotiates partnerships with industry to acquire specimens as they are discovered (e.g., gravel pit operators) and provides advice to industry (e.g., gravel pit operators, surface mining, HRIA consultants), and government concerning Quaternary fossil discoveries with respect to the Historical Resources Act and ensuing site designations.
Provides expert advice within field, relating to fossils, on conservation issues to government and NGOs.
Networks with counterparts in industry, government, educational institutions, and NGOs to identify, develop and pursue projects of palaeontological interest.

7. **Provides supervision, management, training and evaluation of program personnel, including permanent, wage, contract, intern, and volunteer staff to achieve the Museum Business Plan and to carry out research in meeting obligations of funding agencies.**

Back to top

Activities:

Provides work plan, leadership and coaching in the Quaternary Palaeontology laboratory.

Provides training in preparation and identification of fossil remains.

Ensures laboratory is properly resourced and that work conditions are safe and in compliance with relevant Occupational Health and Safety legislation in the workplace and in the field.

Participates in hiring of competent staff, within discipline, to carry out the Museum Business Plan or to carry out research in meeting the obligations to funding agencies.

8. **Ensures the effective administration of financial and human resources to ensure delivery of quality programming and to meet obligations to funding agencies.**

Activities:

Writes contracts, prepares job descriptions within program area, and acts as project control officer.

Ensures that expenditures from allocated budgets support the Museum Business Plan.

Ensures that expenditures from funding agencies meet the obligations of grants in a timely and effective manner.

May serve as Acting Director, Curatorial and Collections Preservation, in the absence of the section head.

Scope

(Illustrates what internal or external areas the job impacts, and the diversity, complexity, and creativity of the job.)

The Quaternary Palaeontology program is responsible for documenting and interpreting the history of Alberta from about 2.0 million years before present to the recent past. The collection of specimens that document this history is diverse and speak to central issues in the history of the province – the faunal biogeography, the extinction of the Ice-Age mega-fauna, and climate change. Research in the field is incorporated into public presentations, exhibitions, and school curricula. The program has a high public profile because of widespread interest in palaeontology and has a legislated mandate to ensure the preservation and presentation of historical resources that document this time period.

The Curator of Quaternary Palaeontology provides leadership for technical and research staff and works with management and other institutions in formulating proposals, conducting research, undertaking data analysis and publishing results. It is an independent position that requires the ability to initiate and complete independent and original research in the context of

Back to top

national and international scholarship. This position represents the Museum (and therefore the GoA) on regional, national and international boards, agencies and professional societies within areas of expertise. It must also network with museum, university, provincial, federal, and international counterparts to coordinate development of research and database technology. The impact of this position can be far reaching, because it provides advice on preservation of material with respect to the Historical Resources Act, including HRIAs, and acts as steward, with authority to accession and recommend de-accessioning for collections and associated data within area of discipline to ensure appropriate preservation, documentation, organization, and access to data for Albertans. The position acts as content and review editor for Museum publications, exhibit text panels and labels and acts as a peer reviewer for scientific journals. Serves as a team member in the redevelopment of galleries, and acts as a consultant to other Curatorial Programs.

Originality and creativity is required in the development and implementation of research projects, publication and communication of research results, development of exhibitions and displays, and creation of associated educational materials and interpretive programs. The position carries out independent research on the glacial history of the province of Alberta primarily based on vertebrate fossils and remains but also stratigraphic assessments and interpretation of associated palaeoenvironmental data. Current research project: Perspectives on Palaeontological Changes in Ice Age Alberta: Past, Present, and Future.

This position is required to develop new specimen-based research techniques. The Curator is responsible for a collection that houses approximately 34,000 specimens ranging in size from microscopic bone fragments to mammoth skeletons. The position is responsible for the accurate identification of the specimens which are used by exhibitions, researchers in universities across Canada, students, and other government agencies. The overall direction for work is set on an annual basis by the Curator and his/her immediate supervisor (Section Head, Landscape Studies), subject to approval by the Director for Curatorial and Collections Preservation. Duties are assigned, reviewed and evaluated for conformance with museum standards by Section Head for Landscape Studies. Tasks are performed and completed within approved program schedules to meet program goals and objectives. Some tasks may be assigned to meet museum-wide schedules and objectives (e.g., gallery development). This position exercises independence in making decisions about the day-to-day operation of program activities, including tasks assigned to supervised staff, contractors, volunteers, and interns, as well as decisions about expenditures from assigned program budget in support of program activities.

Knowledge, Skills and Abilities

Back to top

(Diplomas, degrees and the most important knowledge factors, skills and abilities including knowledge about practical procedures, specialized techniques, etc.; analytical and conceptual skills and abilities; and skills needed for direct interaction with others. Specific training if it is an occupational certification/registration required for the job.)

MSc in Palaeontology (either from Biological or Geological Sciences program) and 2 years relevant experience or a PhD in Palaeontology (either from Biological or Geological Sciences program). Specialized knowledge (post-graduate level) of global-level taxonomy of at least one major group of vertebrate organisms relevant to discipline in Alberta. Emphasis on phylogenetic or specimen-based analysis and substantive publication record in systematic and palaeontological analysis. Knowledge of collections management, including curatorial techniques needed to collect, prepare, care for, handle, conserve, and organize subfossil and fossil palaeontological specimens. At least two years experience working with museum collections in an institutional environment.
Knowledge and experience to carry out fieldwork, often in remote locations and in different seasons, and under arduous conditions.
Ability to initiate and complete independent and original research in the context of national and international scholarship.
Demonstrable high-quality publication record and ability to communicate to both specialized and general audiences.
Knowledge of discipline-specific techniques (e.g., microscopy, SEM, DNA, radiometric dating, CAT scans, x-ray spectrometry, sampling protocols, etc).
Teaching experience.
Facility with analytical, database, Internet and word processing software.
Ability to communicate knowledge to public audience.
Facilitation, influencing, leadership, and team building skills.
Good communication skills and effective instructional skills, strong interpersonal skills and ability to function as a team player.
Good organizational skills.

Contacts

(Main contacts of this position and the purpose of those contacts.)

Back to top

Professionals in related disciplines in GoA, federal government, NGOs, and universities for the purpose of collaborating on research projects, provision of advice, or representing the Ministry.

Consulting companies, and industry for the purpose of carrying out the Historical Resources Act as it pertains to documenting, preserving, and providing access to the Quaternary record of vertebrates in Alberta for Albertans.

The public for the purpose of answering inquiries and providing information, as well as talks, presentations, or workshops to school groups, university lectures, or the public in general.

Supervision Exercised

(List position numbers, class titles, and working titles of positions directly supervised.)

00024055 ICTS 5 Assistant Curator Quaternary Palaeontology

Alberta Government

Last Review / Update: 2016-03-11

Subsidiary 2
Benchmark Evaluation - 024SC13

Identification Section

Working Title: Laboratory Scientist - Molecular Biology

Department: Agriculture and Forestry

Division, Branch/Unit: Food Safety Division, Agri-Food Laboratory Branch/Biology Section

Reports To: Biology Section Head, Senior Manager 1

Levels to D.M.: 5

Job Description: 024SC13

MRS: See the Minimum Recruitment Standards for Scientific

Job Code: 024SC - Scientific 2

Organization Chart
(requires login)

Evaluation

Knowledge
FI1 230

Creativity/Problem Solving
38% 87

Responsibility
C1 76

TOTAL JOB POINTS
393

Comments on Role

This position develops, implements and improves molecular biology procedures for diagnostic testing and surveillance projects approved by the Food Safety Division. It includes establishing, maintaining and enhancing molecular biology protocols to provide quality laboratory results based on sound scientific principles within a quality management system. This position

Back to top

oversees the activities of technologists in the Molecular Biology work unit in the production of test results, assisting with coaching and coordinating work loads, but does not have formal supervisory authority.

Comments on Evaluation

- **Knowledge:**
  Content:

    - **F:** The Molecular Biology Laboratory Scientist requires advanced knowledge in molecular biology theories, principles, and methodologies for detecting and fingerprinting pathogens including bacteria, parasites and viruses. Position has advanced knowledge of testing procedures and equipment, researches new tests, and can analyze their usefulness to the work happening in the unit. Position is considered an expert within the branch on molecular biology testing procedures and is responsible for developing the specific procedures the lab will follow for the existing and validated tests. This position, however, does not develop new tests which could push it to the 'F+' level.

  Complexity and Diversity:

    - **I:** Position has a thorough knowledge of the workflow for the unit, its standard operating procedures, quality management system, and participates in work committees within the Ministry**.**

  Human Relations Skills:

    - **1:** Although position oversees lab testing and may coach or give feedback to staff on duties and procedures, it is not the formal supervisor. Most communication is within the branch and with other scientists or technologists regarding testing procedures and results; for the most part this is considered to be an exchange of technical information. Influencing situations or people is not the focus of the position.

- **Creativity/Problem Solving:**

  38%: Position is tasked to develop and implement new testing and operating procedures for the unit. Latitude is given to the position to decide on alternative courses of action and solutions are found within a body of knowledge and experience, or through literature reviews. Position goes beyond the 33% rating as it is tasked with determining new testing procedures, working in an environment where the problems are known but the solutions (i.e. new procedures and practices) are not known. Position works closely with its supervisor, whose responsibility is over the entire administration and strategic direction of the unit.

- **Responsibility:**

Back to top

C1: The focus of this position is on the development and implementation of procedures for quality management systems (SOP's).

Last Reviewed: November, 2009

Alberta Government

Last Review / Update: 2016-03-11

Subsidiary 2 Benchmark
Job Description - 024SC13

Identification Section

Working Title: Laboratory Scientist - Molecular Biology

Department: Agriculture and Forestry

Division, Branch/Unit: Food Safety Division, Agri-Food Laboratory Branch/Biology Section

Reports To: Biology Section Head, Senior Manager 1

Levels to D.M.: 5

Purpose

(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.)

This position largely develops, implements and improves molecular biology procedures for diagnostic testing and surveillance projects approved by the Food Safety Division. It includes, but is not limited to, establishing, maintaining and enhancing molecular biology protocols to provide quality laboratory results based on sound scientific principles within a quality management system. This position, in conjunction with the Section Head, oversees and coordinates the activities of technologists in the Molecular Biology work unit in the production of test results.

Responsibilities and Activities

(Each end-result/responsibility shows what the job is accountable for, within what framework and what the added value is.)

Back to top

1. **Provide technical lead-hand supervision and leadership to ensure quality results and a timely workflow.**

   Activities:

   Train new staff and/or coordinate the training.
   Oversee technical work within the laboratory to ensure quality results.
   Validate and ensure the accuracy and quality of the results.
   Monitor workload to maintain timely workflow and reporting of results.

2. **Have strong knowledge of molecular biology and have the ability to evaluate the procedures for testing and identifying different disease causing agents in animal health and food safety. Ability to carry out the procedures and generate quality lab results and information.**

   Activities:

   Review testing procedures and stay current with the development of molecular biology technologies.
   Participate in Food Safety Division priority committees.

3. **Supervise and conduct diagnostic testing and develop new methodology for use in diagnostic and surveillance testing, to assist the Alberta Agriculture industry in food safety and the sustainable growth of the industry.**

   Activities:

   Obtain and review relevant literature for each test.
   Develop, evaluate and establish new testing procedures to ensure highest sensitivity and specificity before implementation.
   Write the protocols (standard operating procedures) and documentations for the testing procedures.
   Implement new testing procedures and new molecular biology technologies.
   Troubleshoot molecular biology procedures.
   Select and obtain preferred pricing from various venders for lab supplies and equipment.

4. **Implement new standards and maintain the ISO 17025 Quality Management System in the Molecular Biology work unit to ensure that all results are of high quality.**

Back to top

Activities:

Have comprehensive knowledge of the ISO 17025 Quality Management System.

Represent the Molecular Biology work unit on the Food Safety Division Quality Committee.

Write, review and modify Standard Operating Procedures (SOP's) for molecular biology tests to meet accreditation guidelines.

Ensure the Quality Management System is followed in the lab.

5. **Understand and know how to properly obtain, operate and maintain laboratory equipment in order to generate quality laboratory results within established timelines.**

Activities:

Knowledge of different equipment used in the lab.

Ability to operate the equipment to deliver fast and reliable results.

Ensure all lab equipment is operated, monitored and maintained properly.

6. **Employ computers for data entry, validation and report generation, internet searches and communication by email to ensure accurate and timely flow of information between co-workers and project team members.**

Activities:

Thorough knowledge of the lab information management system.

Ability to search by internet and communicate to staff and partners using email.

Scope

(Illustrates what internal or external areas the job impacts, and the diversity, complexity, and creativity of the job.)

Provide lead-hand supervision to Molecular Biology work unit staff and contract staff involved in diagnostic testing, method development and validation.

Supervise testing for diagnostics that may require processing of large numbers of samples for pathogens pertaining to food safety and animal health issues.

Back to top

Improve or enhance laboratory operations to maintain high accuracy and quality of results within a suitable turnaround time.

Ensure that bio-security and staff safety is maintained at all times when processing samples.

Knowledge, Skills and Abilities

(Diplomas, degrees and the most important knowledge factors, skills and abilities including knowledge about practical procedures, specialized techniques, etc.; analytical and conceptual skills and abilities; and skills needed for direct interaction with others. Specific training if it is an occupational certification/registration required for the job.)

Masters degree in a related field plus 2 years related experience; or equivalent as described below.

Equivalency:

Ph.D. in a scientific discipline related to the position; no experience required.

University graduation in a related field, plus 4 years related experience.

Hands-on expertise and extensive scientific background in molecular biology theories, principles, and methodologies for detecting and fingerprinting pathogens including bacteria, parasites and viruses.

Extensive knowledge of lab equipment including pipettes, centrifuges, freezers, centrivaps, nucleic acid extractors, PCR thermalcyclers. DNA sequencing and/or pulsed field gel electrophoresis experience is an asset.

Strong ability to work cooperatively and coordinate activities within the lab and with project partners. Positive leadership skills within the work unit.

Good computer skills and basic knowledge of common software programs (Windows, Excel, etc.) and some knowledge of standard e-mail and internet procedures.

Strong understanding of quality system goals and implementation of standards (ISO 17025).

Strong organizational, time management, and problem-solving skills.

Ability to document and report on data to co-workers, supervisors and project team members.

Contacts

Back to top

(Main contacts of this position and the purpose of those contacts.)

Veterinarians, scientists and supervisors in the Food Safety Division regarding sampling and test methodology for project development and diagnostic testing and the generation of results.

Supervision Exercised

(List position numbers, class titles, and working titles of positions directly supervised.)

Provides lead-hand supervision to the unit – gives feedback on quality of work, oversees work flow, and trains staff.

Alberta Government

Last Review / Update: 2016-03-11

Back to top

Subsidiary 2
Benchmark Evaluation - 023SC12

Identification Section

Working Title: Provincial Seed Specialist

Department: Agriculture and Forestry

Division, Branch/Unit: Forestry Division, Forest Management Branch, Alberta Tree Improvement Centre

Reports To: Natural Resources 8, Seed Officer

Levels to D.M.: 7

Job Description: 023SC12

MRS: See the Minimum Recruitment Standards for Scientific

Job Code: 023SC - Scientific 1

Organization Chart
(requires login)

Evaluation

Knowledge
EI2 200

Creativity/Problem Solving
29% 57

Responsibility
B 57

TOTAL JOB POINTS
314

Comments on Role

To meet the requirements of the Tree Improvement Program, the Provincial Seed Specialist is responsible for seed extraction and storage of various tree species and for the operations of the seed testing laboratories, according to established scientific procedures. The PUR manages the research and conservation seed program in support of forest genetic research, SRD and forest industry co-operative tree breeding programs and forest gene conservation work. The PUR also conducts seed research

Back to top

in support of genetically improved orchard and wild operational seed management functions. Tasks include management of the seed germplasm bank. The PUR's germplasm bank collections are received as cones which are then extracted, cleaned and tested. The PUR conducts development of seed collection, processing, storage and testing protocols for reclamation species in support of forest genetic resource management and objectives of conservation standards for the use of native shrub species.

Comments on Evaluation

- **Knowledge:**
  Content:

    - **E:** The PUR receives an "E" in knowledge. This position requires knowledge of the theory and principles of plant sciences, knowledge of scientific methodology for seed testing, knowledge of statistics and computer applications. The PUR's application of theoretical knowledge supports a full "E" level rating. Breadth of applied theoretical knowledge is narrow. Positions rated at the "E+" level within this stream apply theoretical knowledge in a broader variety of areas.

  Complexity and Diversity:

    - **I:** Responsibilities are complex in that, the PUR is required to keep current on developments in tree seed processing, storage technology, seed testing and pertinent research. Reports of compiled data, results and recommendations are provided to others. Decisions on how to use this information are ultimately made at higher levels in the organization, therefore an "I" in complexity and diversity.

  Human Relations Skills:

    - **2:** The PUR is required to explain collection methods and processes as well as give directions to those unfamiliar with the field. The PUR must work collaboratively with external stakeholders (other provinces, universities and agencies) to devise best practices and standard operating procedures to ensure maximum success in regards to seed handling and data collection, therefore a "2" HR level. Contacts with professional staff within the Alberta Tree Improvement and Seed Centre can at times require the PUR to influence behaviour to ensure seed handling is conducted according to SOPs.

- **Creativity/Problem Solving:**

  29%: Position is responsible for special cone extraction, storage and seed testing. These responsibilities are all performed within established scientific procedures. New processes may be developed as a result of new developments in seed storage

Back to top

and extraction technologies. Latitude is exercised in developing own research such as storage trails for various species. Situations are not differing and variable, position doesn't influence which scientific principle to use, nor is it primarily focused on analysis with few recommendations. As such, the position is appropriately rated at a "29%" versus that of "33%". This position has access to assistance at higher levels to determine solutions.

- **Responsibility:**

B: Position responsibilities are balanced between development of new processes, procedures and analyses supporting research projects and implementation in providing reports of data, analyses and recommendations to others within the Alberta Tree Improvement and Seed Centre, the Ministry and external partners.

Last Reviewed: November, 2010

Alberta Government

Last Review / Update: 2016-03-11

Back to top

Alberta

Subsidiary 2 Benchmark
Job Description - 023SC12

Identification Section

Working Title: Provincial Seed Specialist

Department: Agriculture and Forestry

Division, Branch/Unit: Forestry Division, Forest Management Branch, Alberta Tree Improvement Centre

Reports To: Natural Resources 8, Seed Officer

Levels to D.M.: 7

Purpose

(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.)

This is a seed specialist position reporting to the Provincial Seed Officer, Alberta Tree Improvement and Seed Centre (ATISC). The position is responsible for providing seed program support and technical advice to the Provincial Seed Officer in delivery of the Provincial Reforestation Seed Program and to ATISC and industry geneticists and tree breeders delivering tree improvement and gene conservation programs. This position requires knowledge of provincial regulations and best practices related to seed management for reforestation and reclamation of Alberta Crown lands as well as knowledge of the science and international standards for tree and shrub seed handling, storage and testing.

Responsibilities and Activities

(Each end-result/responsibility shows what the job is accountable for, within what framework and what the added value is.)

Back to top

1. Reforestation Seed Program

Activities:

Coordinates the ATISC seed testing laboratory and is responsible for overseeing the seed testing program for registered seed lots used by SRD in reforestation of Crown lands.
Assists the Provincial Seed Officer with nursery seed chain of custody inspections and seed extraction and testing facility inspections to verify they meet industry best practices and requirements of the Alberta Forest Genetic Resource Management and Conservation Standards (FGRMS).
Assists Provincial Seed Officer with preparation of department operational seed collection and handling contracts.
Assists in the development of standard operating procedures and best practices for reforestation seed handling, testing and storage that are aligned with accepted best practices and the International Seed Testing Association (ISTA) standards.
Assures ATISC reforestation seed testing procedures meet ISTA standards, requirements of Alberta's Seed Testing Standards (ASTS) and that, seed being processed for registration by ATISC is handled, extracted, tested and stored according to industry best practices and in accordance with FGRMS and ASTS.
Extracts and tests genetically improved seed from orchard permanent sample trees for SRD and SRD/industry co-op programs and assists and provides information to ATISC geneticists developing baseline information for Alberta on orchard development, seed production and seed pests for reforestation species.
Provides SRD and industry with technical advice on wild seed collection timing through monitoring and reporting on seed crop and seed embryo development.
Conducts seed research and publishes research information related to orchard and wild seed production, handling and storage as well as cone and seed pest management for standard reforestation species.

2. Reclamation Seed Program

Activities:

Assists in developing new standard operating procedures and best practices in alignment with accepted best practices and ISTA standards for seed extraction, handling, testing, storage and germination of new and recalcitrant woody plants being considered and used in an expanding provincial level native species reclamation program for public lands.
Assists the Provincial Seed Officer in development and maintenance of a seed registration and inventory system for woody plants used in reclamation of public lands.

Back to top

Maintains seed records and electronic database; compiles results and prepares reports for reclamation seed.

Provides technical advice related to seed management of woody reclamation species to the Provincial Seed Officer, ATISC geneticists and the reclamation industry.

Collaborates with universities, seed experts and industry in applied research and extension work related to the development, dissemination and publishing of information on seed collection, handling, storage and germination for reclamation species that are new or difficult to extract, store or germinate, (many woody plants used in reclamation are unlike standard reforestation species in that, there is little published literature on the science or protocols for seed management and they are frequently difficult to extract, do not store well and often have complex dormancy breaking requirements).

Works with entomologists and pathologists to monitor and develop procedures for managing reclamation species pests and diseases during seed handling and storage.

3. Tree Improvement and Tree Gene Conservation Program

Activities:

Coordinates the research and conservation seed program in support of forest genetic research, SRD and forest industry co-operative tree breeding programs and forest gene conservation work to meet national and international commitments for bio diversity conservation and reporting.

Receives, documents source and correctly assigns accession numbers for all research and conservation seed lots and germ plasm received at ATISC on behalf of SRD, industry clients and research and conservation collaborators.

Where relevant, ensures that ISTA standards and ATISC guidelines are adhered to in seed handling, testing and long term storage by ATISC staff.

Responsible for accurate reporting of seed and germ plasm documentation to the administrator of the Genetic Seed Information System (GSIMS).

Assists in Developing protocols and best practice procedures for extracting, handling, testing, storing, stratifying and germinating research and conservation seed lots including Alberta's twenty eight native tree species, two Alberta endangered tree species and selected shrubs.

Reports on seed testing results and inventory for research and conservation seed and germ plasm collections to ATISC geneticists, industry partners involved in tree improvement programs, collaborative research partners and conservation partners involved in species recovery and bio diversity reporting.

Responsible for liaison work related to access and withdrawal of research and conservation germ plasm for industry tree improvement partners, ATISC geneticists and research and conservation collaborators.

Back to top

Keeps abreast of developments in seed testing and pertinent seed science research, collaborates in publishing applied seed research, adjusts procedures according to new information and seed science and advises seed program staff.

Makes presentations and provides instruction on types of seed, collection and handling methods and germination techniques to volunteers, students, Tourism Park & Recreation staff and youth groups including Junior Forest Wardens of SRD.

Conducts tours of the ATISC for the general public and various academic organizations such as NAIT, UofA and Lakeland College.

Scope

(Illustrates what internal or external areas the job impacts, and the diversity, complexity, and creativity of the job.)

Proper seed testing, handling and standardized storage procedures and facilities are critical to the genetic identity, health and longevity of seed stored at ATISC used to meet SRD and industry reforestation, reclamation, tree breeding and conservation objectives for Crown lands, both currently and in the future.

It also provides seed clients with assurance through standardized protocols that ATISC *is managing* seed according to best practices and standards and not putting their seed at risk.

The Gene Seed Bank maintains germ plasm from numerous tree species collected in Alberta, Canada and from international provenances and is basic to conducting forest genetics research, tree breeding and long-term genetic stock conservation and exchange.

The Gene Seed Bank is also used to maintain long term *ex situ* conservation seed collections for Alberta native tree species including those listed as endangered. This collection is reported nationally as part of our provincial, national and international commitment to conserve bio diversity.

Assistance and technical advice provided to the Provincial Seed Officer and industry partners is critical in maintaining seed client service quality and satisfaction with the ATISC reforestation and reclamation seed program and the position is a one point seed science and technology information source for GoA and industry on reforestation and reclamation seed.

Back to top

Knowledge, Skills and Abilities

(Diplomas, degrees and the most important knowledge factors, skills and abilities including knowledge about practical procedures, specialized techniques, etc.; analytical and conceptual skills and abilities; and skills needed for direct interaction with others. Specific training if it is an occupational certification/registration required for the job.)

University degree in seed science or related area.

Knowledge of theory and principles of plant sciences.

Knowledge of statistics and computer applications for technical work.

Knowledge of scientific methodology for seed testing.

Familiarity with ISTA, ASTS and FGRMS.

Familiarity with specialized laboratory instrumentation, equipment and controlled environment chambers.

Good report writing and verbal communication skills.

Ability to efficiently organize/schedule workloads.

Contacts

(Main contacts of this position and the purpose of those contacts.)

ATISC Provincial Seed Officer – Research seed orders, extraction facility and nursery inspections, seed technical advice, and inventory assistance and information.

ATISC Geneticists and Scientists- Research and conservation seed inventory and information and orchard seed production information.

Alberta Tourism, Parks and Recreation – Parks Division for research and conservation seed collection coordination and information as well as seed handling, registration and storage AB Parks Division conservation and restoration needs.

Canadian Forest Service – Manager Forest Genetic Resources, National Tree Seed Centre – National tree seed inventory and information.

Back to top

Industry Seed Clients – Supports the Provincial Seed Officer with serving forest and reclamation industry clients with registered seed inventory and seed information for seed stored with ATISC as well as scientific and technical information and advice on both wild and seed orchard seed crops and collections.

Supervision Exercised

(List position numbers, class titles, and working titles of positions directly supervised.)

Supervises Technologies 3 position #00028630 (lab technician).

Alberta Government

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Back to top