

This GS-12 *Resources Careers* position description requires classification and original signatures on an OF-8 by the servicing personnel office. The watermark indicates that the position description is the optional position description that fits the *Resources Careers* GS-12 general evaluation statement.

**NATIONAL PARK SERVICE
BENCHMARK POSITION DESCRIPTION**

GIS Specialist

Interdisciplinary

Geographer, GS-150-12

Biologist, GS-401-12

Physical Scientist, GS-1301-12

Cartographer, 2GS-1370-12

Introduction

The incumbent is responsible for the development, management, coordination, and implementation of the Geographic Information System (GIS) for one or more parks. The interdisciplinary nature of this position requires the programmatic integration of the knowledge of biological and physical resources, digital cartography, and geography to the development, analysis and use of geographic and relational databases that are pertinent to the park resources and themes. GIS is used to document, analyze, and integrate the management of natural and cultural resources in their environmental context or to manage the environment in the context of the resources. The position will be filled from one of the occupational series pertinent to the park resources and themes.

Major Duties (80-100%)

Directs an intricate program of GIS activities that involve sensitive and complex topics that may impact a wide variety of park issues.

Represents the superintendent when working with others on GIS matters. Develops and maintains liaisons and effective working relations with related groups and individuals, agencies, and the public in order to encourage and facilitate cooperative regional management strategies. Attends management and professional conferences and other events for the purpose of exchanging information, presenting technical and policy information, and advancing advocacy for park stewardship.

Designs, develops, and manages the GIS database and database management system, including the conversion of thematic source maps from analog to digital form through the use of appropriate hardware and software. This involves augmenting the GIS database by digitizing mapped information, importing existing digital data or converting data. Ensures that national data standards and park needs are met.

Represents park on NPS regional task groups or similar organizations. Participates in professional meetings, workshops, conferences, and symposia dealing with GIS and related topics. Develops presentations for conferences and writes articles about uses and applications of GIS to park and resources management. Maintains professional

relationships with other and private agencies and organizations to facilitate data procurement and sharing, and cooperation on a variety of GIS, information management, research, and resources-related projects.

Assists GIS and resources management staffs in parks, centers, and support offices by providing direct professional and programmatic advice and support.

Carries out program management duties by developing work plans and schedules, cost estimates, and proposals and/or grants to justify funding requests and accomplish goals. May administer and track project funds and prepare accomplishment reports, as needed. Maintains awareness of applicable funding sources within NPS and outside.

Develops and implements long range plans for GIS capabilities within the appropriate mission, objectives, and resources contexts.

Develops guidelines to deal with the more complex or unusual problems, or with novel, undeveloped or controversial aspects of using GIS applications.

Negotiates cooperative and interagency agreements and other cooperative instruments needed to effectively carry out GIS programs to meet resource stewardship goals.

Using integrating computer models and other tools with biological and physical scientific knowledge and resources management practices, conducts analysis of geo-referenced data to determine resources conditions or trends; models expected or predicted results of alternative management actions; and works to resolve management issues.

Manages and integrates a variety of GIS and database management software, and when necessary, modifies or adapts standard software to meet program needs. Implements data documentation procedures and data distribution using appropriate technologies, e.g. Internet. Designs and develop global positioning system (GPS) data dictionaries, spatial data inventories, and cross linkages to ensure software and data structure compatibility.

Maintains hardware, peripherals, GPS units, network, and GIS operating systems (typically both UNIX and DOS). Implements a program to ensure the security and currency of GIS hardware and software including system administration and maintenance.

Coordinates the acquisition and management of GIS data with other federal, state, and local resources offices and the academic community. Works cooperatively with land-use planners and others in the private sector on issues and GIS application of mutual concern and application. Coordinates and manages data collection priorities, funding mechanisms, and joint projects.

Prepares GIS plans, data dictionaries, resources management plan project statements related to GIS, project proposals, GIS-related contract and agreement specifications, and written reports.

Ensures that the correct and appropriate application of geographic and cartographic concepts and principles are applied to database construction, analyses, and production of high quality digital and hardcopy GIS products. Adapts standard techniques and modifies methods of graphical presentation of complex park issues, GIS data, and analyses. Creates draft and presentation quality output products.

Plans, executes, and supervises field work in remote environments to generate new or verify ("ground-truth") mapped information, using standard resources field sampling and scientific methods. Coordinates with specialists in other disciplines as needed to do the same for digital themes covering cultural and natural resources, infrastructure, and other disciplines.

Trains and instructs others in the use of GIS applications and basic GIS, GPS, and related technology.

Works closely with park education staff to incorporate new information into park and partner education programs.

May supervise seasonal, temporary, permanent, VIP, and other personnel, but less than 25% of the time.

Factor 1. Knowledge Required by the Position Level 1-7; 1250 points

Knowledge of NPS planning and management requirements and guidelines so that work applies to programs that provide adequate long-term protection for resources.

Professional knowledge of geography, digital cartography, biology, and physical sciences, as appropriate, in order to successfully integrate and apply the full range of GIS applications to meeting program objectives.

Knowledge of GIS related hardware and basic computer requirements and techniques.

Ability to develop, maintain, and operate complex computer systems that include a wide range of peripherals including digitizers, scanners, printers, and associated field tools such as data loggers and GPS units, in order to acquire and use the full range of tools to produce and maintain databases.

Knowledge of computer operating systems (e.g. DOS, UNIX), software application packages for GIS (e.g. ARC Info, GRASS), database management (e.g. dBase, Access), and the skill to apply these technologies to effectively accomplish the GIS program.

Professional understanding of scientific theory, methods, resources management practices, and park management needs and the skill to interpret and apply this knowledge to the development of GIS products. This knowledge is important for the process of defining how GIS technology can be applied to meeting resources

management objectives.

In-depth knowledge of program management and administration of budget, contracts, and personnel.

Professional knowledge of the principles and applications of remote sensing technologies including coordinate systems, aerial photography, videography, geo-referencing methods and satellite image processing in order to define and use the full range of technology in creating databases.

Skill to analyze complex arrays or GIS themes and relational datasets and use modeling technology to create new understandings of resources and geographic relationships (applied research).

Skill to communicate effectively with people having a wide range of understanding of GIS technology and applications in order to develop the GIS program, participate in land use planning and other cooperative efforts, and to convey complex concepts to others.

Factor 2. Supervisory Controls Level 2-4; 450 points

The supervisor sets the overall goals and resources available. Guidance is provided only to determine priorities, approve work plans, and assist in working through unprecedented situations that have a bearing on the overall program.

The incumbent independently plans, designs, implements, and oversees the program with a minimum of direct supervision. Independent judgement is required on a regular basis in developing, testing, and refining procedures and methods, and in the application of these methods. The incumbent resolves most problems that arise and coordinates the work both within the work unit and with other park divisions. The incumbent keeps the supervisor informed of progress, potentially controversial problems, and concerns, issues or other matters having far-reaching implications.

The supervisor evaluates the completed work based on general adequacy in meeting program or project objectives, expected results, and compatibility with other work. Work produced is considered technically correct and is normally accepted without significant change.

Factor 3. Guidelines Level 3-4; 450 points

Guidelines include laws, regulations, policies, scientific and technical manuals, scientific protocols, plans, procedures, and any additional directions given and defined by the supervisor. Policies and precedents are applicable but are stated in general terms; guidelines are scarce or of limited use. Guidelines are often inadequate to deal with the more complex or unusual problems, or with novel, undeveloped or controversial aspects of using GIS encountered at the field level. These kinds of situations occur when precedents or guides point toward conflicting decisions; recent court decisions or legislation may appear to require a technical decision at variance

with existing guides; or there may be relatively few precedents or guides which are pertinent to specific methods; or proven methods are incomplete. The employee uses initiative and resourcefulness in deviating from traditional methods or researching trends and patterns to develop new methods, criteria or proposed new policies.

Factor 4. Complexity Level 4-5; 325 points

The work includes varied duties requiring many different and unrelated processes and methods that are applied to a broad range of activities or substantial depth of analysis. Decisions regarding what needs to be done include major areas of uncertainty in approach, methodology, or interpretation and evaluation processes that result from such elements as continuing changes in program, technological developments or conflicting requirements. The work requires originating new techniques, establishing criteria or developing new information.

Resources issues are often publicly controversial and require substantial initiative and skill in building consensus and obtaining public and cooperating agency support. The incumbent must exercise professional skills for assignments that significantly depart from established practice. The work includes varied duties requiring many different and unrelated processes and methods that are applied to (1) a broad range of GIS subjects or (2) substantial depth of analysis. GIS, remote sensing, and data management technologies are highly complex and rapidly evolving fields requiring both professional and technical knowledge and skill in a wide range of generally unrelated fields of study.

Assignments involve sensitive and complex resources issues that require solving problems concerned with novel, undeveloped or controversial aspects. The problems are difficult due to the abstract nature of the concepts, or the existence of serious conflicts among scientific requirements, program direction, and administrative requirements. These conditions create major areas of uncertainty in the decision-making process. Information collected must be reorganized, interpreted, and presented to reflect supportable hypotheses and themes. The incumbent must be able to examine separate subject areas to draw upon research and sources of several fields of resources management.

The incumbent must be especially versatile and innovative in order to recognize new approaches, devise new or improved techniques or strategies for obtaining effective results, or to anticipate future trends and requirements. In addition, the person must be able to (1) exercise good professional judgement in ensuring the appropriate methods and technology, (2) identify resources, evaluate their significance, and develop GIS options that take into account all levels and areas of concern, and (3) prepare databases to illustrate and manage the resources.

Factor 5. Scope and Effect Level 5-4; 225 points

The purpose of the work is to develop and implement plans and strategies to protect resources and resolve problems with solutions that achieve management objectives. The successful accomplishment of the duties of this position results in strategies and

products to protect resources. The work involves establishing criteria, formulating projects, assessing program effectiveness or investigating or analyzing a variety of unusual conditions, problems or questions. The product or service affects a wide range of agency activities, major activities or issues, or the operation of other agencies or entities. Management strategies developed and conducted by the incumbent are essential to maintaining the resources. Information gained through research, inventory, and monitoring provide the professionally credible basis for decisions; thereby, directly affecting the current and future integrity of the resources.

The work influences the effectiveness or acceptability of agency goals and programs by managers or specialists in outside agencies. Programs carried out by the incumbent directly affect the preservation or enhancement of the ecological and cultural integrity of parks and surrounding landscapes.

Factor 6. Personal Contacts Level 6-3; 60 points

Contacts are made with GIS experts, resources managers, researchers, land use planners of other agencies and tribes, other park staff, science and management staffs of other parks, conservation and preservation organizations, the media, and the general public. Contacts typically are not established on a routine basis, and the role and authority are identified and developed during the course of the contact.

Factor 7. Purpose of Contacts Level 7-2; 50 points

The purposes of the contacts are to provide professional advice to managers and other staff; to exchange information; to provide instruction and services; to coordinate and advise on mutual work efforts and research; to insure compliance with regulations, protocols, and procedures; to train; to procure supplies and materials; and to secure cooperation for park programs from other agencies, individuals or interest groups.

Factor 8. Physical Demands Level 8-2; 20 points

The work is often sedentary but field work occasionally requires some physical exertion such as long periods of standing, walking over rough, muddy, uneven swampy or mountainous terrain; recurring periods of bending, crouching, stooping, stretching, reaching or similar activities; and recurring lifting of moderately heavy items weighing up to 50 pounds. Computer work is sedentary, which entails the ability to concentrate and use computers for long periods of time.

Factor 9. Work Environment Level 9-1; 5 points

Work is primarily performed indoors in a climate controlled office environment. Outdoor work may occur in hot, cold, humid or dry weather conditions. Outdoor work may also be required during periods of rain, snow, sleet, fog, or other adverse weather conditions.

Total Points 2835