



BIODIVERSITY INFORMATION MANAGEMENT TECHNICIAN

*Also known as Biodiversity Information Management Specialist,
Database Manager, GIS Technician, Spatial Modeller*

Biodiversity Information Management Technicians work in a dynamic, fast evolving field that has to do with capturing biological and spatial data, analysing and interpreting this data to develop policy, predict changes and plan appropriate responses and generally manage biodiversity.

Biodiversity Information Management Technicians use a combination of Information and Computer Technology Skills together with knowledge of biodiversity and ecosystems. Their tasks include researching, interpreting, analysing, organizing, presenting and communicating biodiversity information. They map information about plants, animals and their distribution patterns or changes in soil, climate or habitats into spatial maps.

These Technicians generally work indoors in a shared environment with computers and automated equipment.

Skills

Biodiversity Information Management Technicians are essentially involved in data capturing, analysis and presentation. Key skills that they use include:

- Mathematical and analytical skills
- Computer skills
- Spatial reasoning
- Meticulous and accurate with great attention to detail
- Modelling skills
- Social engagement to understand the use of information and interpret needs of the client

Tasks

- Research and analysis
- Organising and presenting biodiversity information and related scientific data
- Study literature related to conservation blueprints, priority landscapes and properties

Studies

BSc, BA or BSocSc specialising in Environmental Management, Geography, Mathematics and Computer Science. Some universities where these courses are offered are: UL, UniVen, NWU, UFS, Wits, UP, UNISA, UJ, UZ, UKZN, RU, WSU, UFH, NMMU, UWC, UCT, US

National Diploma in Environmental Management, Nature Conservation or Computer Science. Universities of Technologies which offers these courses are CPUT, CUT, MUT

Employers

- Research institutions (e.g. CSIR, ARC, SAIAB)
- Private consultancies (e.g. NCC-Environmental Services)
- Provincial conservation agencies (e.g. ECPTA, NWPB, CapeNature)
- Parastatals (e.g. SANBI, SANParks, Eskom)



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BIODIVERSITY MONITOR

Also known as Monitoring Specialist, Environmental Monitoring Officer, Biodiversity Monitoring Co-ordinator

Biodiversity Monitors are responsible for monitoring and reporting on the state of biodiversity. With increasing pressures and threats to biodiversity it is important to keep an account of patterns and trends.

Using scientific methods of research Biodiversity Monitors collect ecological data. They spatially analyse species distribution and populations, particularly threatened and protected species and habitats.

Biodiversity Monitors who collect primary data spend most of their time in the field. They also receive raw data from scientists and process this in an office environment with computers and automated equipment.

Skills

Biodiversity Monitors collect data using scientific research and write reports on findings for the general public.

Skills that Biodiversity Monitors need are:

- Understanding biodiversity patterns, trends and indicators
- Sound knowledge of environmental policy and legislation
- Ability to work independently
- Aptitude for computers and statistics
- Good interpersonal skills particularly when working closely with other scientists
- A keen interest in ecological species and habitats

Tasks

Specific tasks which Biodiversity Monitors undertake are to:

- Collect biodiversity or receive data from other scientist
- Calculate population and distribution statistics
- Geographically represent and analyse species, using GIS techniques
- Report on findings

Studies

BSc, BA or BSocSc specialising in Environmental Management, Geography, Mathematics and Computer Science. Some Universities which offer these courses are UL, UniVen, NWU, Wits, UP, UNISA, UKZN, UFH

National Diploma in Environmental Management, Nature Conservation or Computer Science these courses are offered by CPUT, MUT, TUT, VUT, amongst others

Employers

- Government agencies (e.g. DEA, DWA)
- Provincial conservation agencies (e.g. Cape Nature, EKZN Wildlife, DENC)
- NGO's (e.g. Birdlife, WESSA, EWT)
- Parastatals (e.g. SANBI, SANParks, CSIR)



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PARK MANAGER

Also known as Conservation Manager, Game Ranch Manager, Park Ranger, Protected Area Manager, Nature Reserve Manager

Park Managers are responsible for ensuring that land and all natural resources within legislated protected areas, like reserves and national parks are maintained and conserved to secure ecological biodiversity.

Park Managers draw on the Protected Areas Act 2003 to manage biodiversity for human and ecological wellbeing. They manage protected areas, mostly as income generation ventures through tourism. Recent trends in managing protected areas are that Park Managers need to engage with communities adjacent to parks and reserves and those who use these for recreation. Park Managers work with all sectors of society including schools, industries, businesses, civil society and governing agencies.

Park managers work in natural environments and carry out management and administrative tasks, much of which is conducted through indoor meetings and seminars.

Skills

Park Managers manage protected areas, staff, visitors and users through extensive planning, management, financial management and human resources management. Leadership, management and business acumen are key skills for the Park Manager. Park Managers ideally have strong:

- Visionary and strategic thinking skills
- Leadership skills
- Management, planning and organizational skills
- Financial planning and management skills
- Strategic human resource management skills
- Communication skills, across multiple stakeholder groups and across hierarchical levels
- Highly organised and reliable

Tasks

- Manage nature reserves in a sustainable manner
- Manage research and report incidents on the reserve
- Manage the collection of species samples
- Manage compliance for implementing governance and regulations related to threats to natural resources, for example poaching
- Manage the protection of all natural resources
- Manage public engagement and education
- Manage interactions with multiple stakeholders, interested and affected parties

Studies

BSc or BTech specialising in Ecology or Nature Conservation, coupled with extensive experience in park and reserve management. Some universities offering these courses include UWC, SU, RU, UniVen, UKZN, CPUT, MUT and TUT

Employers

- Private nature reserves (e.g. Grootbos, Aquilla, Timbavati Private Nature Reserves)
- Local government nature reserves (e.g. City of Cape Town, NM Bay Metro)
- National Parks (e.g. SANParks)
- Provincial nature reserves (e.g. Cape Nature, ECPTA)



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RESOURCE ECONOMIST

*Also known as Environmental Economist,
Researcher, Sustainable Development Specialist*

This is a relatively new and evolving career field. Much of the work of Resource and Environmental Economists are treading new territory and often ground-breaking in nature.

Resource Economists apply economic theory and methods to environmental problems that require detailed analysis to improve management strategies and policy. The field aims to address the connections and interdependence between economics and ecosystems. The work of a Resource Economist requires awareness of a broad range of social, political and environmental contexts.

Resource Economists spend time in the field and office environment. They often spend a lot of time reading, gathering and processing information.

Skills

Resource Economists monitor and analyse economic and environmental trends to formulate recommendations for improved environmental management strategies and policies. Skills required include:

- An interest in social and economic matters in relation to the natural world
- Creative, thorough and analytic in problem-solving
- Enjoys detailed and systematic work
- Strong mathematical and numerical ability, logical and abstract reasoning ability
- Ability to communicate easily and effectively both in writing and verbally
- Ability to work with large multi-disciplinary teams on complex problems
- Ability to analyse and interpret information

Tasks

- Assess the costs and benefits of various activities, policies or regulations that affect the environment or natural resources.
- Collect and analyse data to compare the environmental implications of economic policy or practice alternatives.
- Conduct research to study the relationships between environmental problems and patterns of economic production and consumption.
- Develop economic models, forecasts or scenarios to predict future economic and environmental outcomes.
- Perform complex, dynamic and integrated mathematical modelling of ecological, environmental and economic systems.
- Identify and recommend environmentally-friendly business practices.

Studies

B.Agric with Ecology/Botany and Economics or B.Economics / B.Com / B. Bus Science with Geography/Botany/Zoology or BSc with Economics. Some universities where these combinations are offered include UWC, UJ, Wits, SU, NMMU and UCT

Employers

- International and local financial institutions (e.g. World Bank, Land Bank)
- Research Institutions (e.g. Energy Research Centre-UCT)
- Mining companies (e.g. Anglo American)
- NGO (e.g. Sustainable Energy Africa)



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WILDLIFE VETERINARIAN

*Also known as Vets, Animal Doctor,
Veterinary Epidemiologist*

There are three sub categories of Veterinarians that include Vets in private practice who work mainly on game farms with wildlife, Vets employed by conservation agencies e.g. SANParks and Ezemvelo and Vets in private practice or state employed Vets who specialise in domestic animals. The vast majority of Vets work with domestic animals such as pets and livestock. The demand for Vets has increased in recent years and is likely to continue to grow. Wildlife Vets are particularly in short supply.

Wildlife Vets carry out clinical and surgical procedures on wildlife species. They are involved in disease research, and often in the management of breeding projects. Their work also includes rehabilitating injured animals.

Most Vets work outdoors, with animals on game farms and parks. Some time may be spent in a laboratory performing tests or doing research, in consulting rooms and surgery or giving lectures at educational institutions.

Skills

Much of the Vets work revolves around handling and working with animals. Skills required include:

- Excellent technical knowledge
- Ability to diagnose and solve animal health problems
- Ability to perform clinical and surgical procedures
- Good vision, hearing, stamina and health
- Ability to think and act quickly and calmly
- Good communication

Tasks

- Medical care and treatment of wildlife species
- Game capturing and translocation procedures
- Rehabilitation of wildlife species
- Researching new technologies and medical procedures

Studies

BVSc - UP at Onderstepoort near Pretoria. This is a 6-year degree and the only route to becoming a Vet.

Employers

- Parastals (e.g. SANParks)
- Provincial conservation agencies (e.g. EKZN, ECPTA, CapeNature)
- Private game reserves (e.g. Aquila Game Reserve)
- Mining companies who have game reserves on part of their land (e.g. De beers)



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