# Open Source GIS for Conservation Training Course

Professional Development Training Course Outline

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|---|---|---|---|
| **Category** | Environmental Management and Conservation | **Duration** | 5 Days |
| **Base Fee** | $1,500 USD | **Delivery Mode** | Online / On-site Hybrid |

## Course Introduction

Geographic Information Systems (GIS) have revolutionized the way we approach environmental challenges, offering powerful tools for spatial analysis, mapping, and data visualization. In the critical field of conservation, the application of GIS is paramount for understanding complex ecological systems, mitigating threats like habitat loss and climate change, and making data-driven decisions. Open Source GIS for Conservation Training Course is designed to unlock the full potential of open-source GIS software, providing conservation professionals, researchers, and students with the skills to leverage cutting-edge geospatial technologies without the barrier of expensive proprietary licenses. By focusing on platforms like QGIS, we will democratize access to powerful tools, fostering a new era of collaborative and sustainable conservation efforts worldwide.

This intensive training program goes beyond theoretical concepts, diving deep into hands-on applications and real-world case studies. Participants will learn to collect, manage, analyze, and interpret spatial data to address pressing conservation issues. From mapping endangered species habitats to modeling climate change impacts on ecosystems, the skills acquired in this course are directly applicable to a wide range of conservation challenges. The curriculum is built around strong, trending keywords such as **biodiversity mapping, habitat suitability analysis, wildlife corridor modeling, and remote sensing for conservation**, ensuring that participants are equipped with the most relevant and in-demand skills in the modern geospatial landscape.

## Programme Curriculum

**Open Source GIS for Conservation Training Course**

**Introduction**

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**Course Duration**

5 days

**Course Objectives**

1. Master fundamental principles of **Open Source GIS** for **environmental resource management**.
2. Learn to effectively use **QGIS** for **biodiversity mapping** and **spatial data analysis**.
3. Apply **remote sensing** techniques to monitor **land-use change** and **deforestation**.
4. Develop skills in **wildlife corridor modeling** to enhance habitat connectivity and migration.
5. Perform **habitat suitability analysis** for endangered species using multi-criteria evaluation.
6. Utilize **geospatial data science** to analyze patterns of human-wildlife conflict.
7. Integrate **drone data** and aerial imagery for high-resolution ecosystem monitoring.
8. Conduct **landscape connectivity analysis** to inform conservation planning.
9. Create and manage **geospatial databases** for long-term conservation projects.
10. Apply **predictive modeling** to forecast the impacts of **climate change** on ecosystems.
11. Develop professional, **cartographically sound maps** for scientific communication.
12. Use **Participatory GIS (PGIS)** to involve local communities in conservation efforts.
13. Explore the use of **satellite imagery** (e.g., Sentinel, Landsat) for large-scale monitoring.

**Organizational Benefits**

- Eliminate expensive licensing fees associated with proprietary GIS software, allowing for significant budget savings.
- Equip teams with the ability to analyze complex spatial data, leading to more effective and targeted conservation strategies.
- Promote a culture of open science by using universally accessible tools and data formats, facilitating collaboration with a global network of conservationists.
- Automate repetitive geospatial tasks and workflows, freeing up valuable time for field work and strategic planning.
- Strengthen the technical capabilities of staff, making the organization more resilient and adaptable to evolving conservation challenges.

**Target Audience**

1. Conservation Biologists and Ecologists.
2. Environmental Researchers.
3. Protected Area Managers.
4. NGO and Non-Profit Staff.
5. Forestry and Wildlife Professionals.
6. Graduate and Undergraduate Students.
7. Community-Based Conservation Leaders.
8. Government Agency Staff.

**Course Outline**

**Module 1: Introduction to Open Source GIS and Conservation**

- What is GIS and its role in modern conservation?
- Introduction to open-source software: QGIS, PostGIS, and their advantages.
- Understanding spatial data types: vector (points, lines, polygons) and raster.
- Navigating the QGIS interface and basic map creation.
- **Case Study:** Mapping global biodiversity hotspots and protected areas to understand conservation needs.

**Module 2: Geospatial Data Acquisition and Management**

- Sourcing open-source geospatial data (e.g., OpenStreetMap, Landsat, Sentinel).
- Working with GPS data from field surveys.
- Georeferencing historical maps and satellite images.
- Creating and editing vector data layers in QGIS.
- **Case Study:** Digitizing and mapping local land use changes from aerial photographs to assess habitat fragmentation.

**Module 3: Remote Sensing for Environmental Monitoring**

- Fundamentals of remote sensing: understanding spectral bands and satellite imagery.
- Using satellite data (e.g., Landsat, Sentinel) for land cover classification.
- Analyzing vegetation health using indices like NDVI.
- Detecting deforestation and illegal logging activities.
- **Case Study:** Monitoring the health of a a designated forest reserve over a decade using multi-temporal Landsat imagery.

**Module 4: Spatial Analysis for Conservation Planning**

- Core spatial analysis tools: buffer, clip, dissolve, and merge.
- Conducting overlay analysis to identify high-risk or high-value areas.
- Performing proximity and network analysis.
- Using raster algebra for complex environmental modeling.
- **Case Study:** Identifying priority areas for reforestation by analyzing soil type, slope, and proximity to water sources.

**Module 5: Habitat Suitability and Wildlife Modeling**

- Introduction to species distribution and habitat suitability modeling.
- Using environmental variables to predict species occurrence.
- Creating multi-criteria evaluation models to rank suitable habitats.

- Modeling and mapping wildlife corridors for connectivity.
- **Case Study:** Modeling the potential habitat for a rare species in a fragmented landscape and identifying crucial migration corridors.

**Module 6: Human-Wildlife Conflict and Conservation Actions**

- Analyzing spatial patterns of human-wildlife conflict.
- Mapping conflict hotspots and identifying root causes.
- Developing and mapping strategies for mitigation.
- Using GIS to visualize and communicate conflict data to stakeholders.
- **Case Study:** Mapping elephant crop-raiding incidents in a community and modeling patrol routes to mitigate conflict.

**Module 7: Advanced Cartography and Communication**

- Principles of effective map design for a conservation audience.
- Advanced symbology, labeling, and layout creation.
- Creating interactive web maps using open-source tools.
- Preparing maps and data for scientific publications and reports.
- **Case Study:** Designing a professional, high-impact map to communicate the progress of a conservation project to donors and the public.

**Module 8: The Future of Conservation GIS**

- Introduction to cloud-based geospatial platforms (e.g., Google Earth Engine).
- Using scripting (e.g., Python with PyQGIS) to automate workflows.
- Exploring the role of machine learning and AI in conservation GIS.
- Understanding the principles of Participatory GIS (PGIS).
- **Case Study:** Utilizing Google Earth Engine to rapidly assess forest fire damage and plan for post-fire recovery across a large region.

**Training Methodology**

This course employs a **blended learning approach**, combining live, instructor-led sessions with hands-on, self-paced exercises. The methodology is designed for maximum engagement and practical skill acquisition:

- Hands-on, Project-Based Learning.
- Real-World Case Studies.
- Interactive Q&A and Group Discussions.
- Expert Instruction.
- Comprehensive Resources.

**Register as a group from 3 participants for a Discount**

**Send us an email: info@fineskilltrainingcenter.org or call** *+254769199797*

***Certification***

*Upon successful completion of this training, participants will be issued with a globally- recognized certificate.*

***Tailor-Made Course***

*We also offer tailor-made courses based on your needs.*

**Key Notes**

**a.** The participant must be conversant with English.

**b.** Upon completion of training the participant will be issued with an Authorized Training Certificate

**c.** Course duration is flexible and the contents can be modified to fit any number of days.

**d.** The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

**e.** One-year post-training support Consultation and Coaching provided after the course.

**f.** Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

## Upcoming Scheduled Sessions

| Start Date | End Date | Location | Price |
|---|---|---|---|
| **23 Nov 2026** | 27 Nov 2026 | Online | $1,000 |
| **23 Nov 2026** | 27 Nov 2026 | Physical | $1,500 |
| **23 Nov 2026** | 27 Nov 2026 | Physical | $3,000 |
| **23 Nov 2026** | 27 Nov 2026 | Physical | $3,000 |
| **23 Nov 2026** | 27 Nov 2026 | Physical | $6,000 |
| **23 Nov 2026** | 27 Nov 2026 | Physical | $4,500 |
| **23 Nov 2026** | 27 Nov 2026 | Physical | $6,000 |
| **23 Nov 2026** | 27 Nov 2026 | Physical | $6,000 |

Ready to enroll or request a customized program? Book online or contact us:

**Register Online Now**

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com