MCP SERVER | NO CODE | CLOUD HOSTED

Biodiversity Impact Assessment MCP

Quantify ecological risks and ensure environmental compliance.

Biodiversity Impact Assessment MCP gives your AI client the ability to model the biological consequences of industrial projects. It calculates habitat loss, evaluates fragmentation risks, and checks if your mitigation strategies follow the required regulatory hierarchy.

A+ Quality Score 100/100

biodiversity | habitat | iucn | mitigation | ecology

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vinkius.com/en/ai-agent-connect/biodiversity-impact-assessment

SCAN TO VIEW

The connectivity layer between AI and the world's software.

Vinkius sits between AI and every application. All communication passes through Vinkius Cloud via the Model Context Protocol (MCP) — with governance, observability, and security at every layer.

Your AI Connections Run Through Vinkius Cloud

The world's largest managed MCP catalog

Vinkius is the connectivity layer where AI connects to the software your business already runs. We handle the hosting, the security, the credentials, the uptime — you get agents that actually do things.

We operate the world's largest managed MCP catalog. Major SaaS platforms, CRMs, databases, and cloud providers — running, monitored, production-ready. This MCP server is hosted and maintained by the Vinkius Cloud for AI Agents.

> *The agent doesn't manage credentials, doesn't manage uptime, doesn't manage security. Vinkius does.*
>
> — Architecture principle

Four Pillars of the Vinkius Runtime

01 — Security by design

Credentials stay encrypted at rest via AES-256. The AI agent never touches raw keys — they're injected into a sandboxed V8 isolate at runtime. Actions are logged, and connections have an emergency kill switch.

02 — Built on MCP Fusion

This MCP server was built with **MCP Fusion**, the open-source framework (Apache 2.0) that powers the entire Vinkius catalog. Schema-as-firewall strips undeclared fields, compiled PII redaction runs at zero overhead, and cryptographic lockfiles produce git-diffable audit trails.

03 — Deterministic observability

Eight immutable metrics per endpoint: request volume, p95 latency, error rate, active connections, cost attribution. A live payload feed logs every tool call with mutation detection.

04 — Autonomous operations

Servers are deployed, monitored, and patched autonomously. New capabilities and security patches ship weekly. Zero-downtime deployments ensure continuous availability across all managed MCP servers.

AES-256	Ed25519	24h TTL	V8 Isolate
Encryption at rest	PKI vault signatures	Ephemeral session keys	Sandboxed execution

One Token. Instant Access.

Every MCP server on Vinkius is accessed through a **Connection Token**. Tokens are generated in the cloud dashboard and produce a unique MCP endpoint URL. Paste this URL into any MCP-compatible client — no SDK required.

A single token can serve **multiple AI clients simultaneously**, or you can issue separate tokens per client for granular access control. Each token tracks its own request count, last activity timestamp, and can be individually enabled or revoked.

MCP ENDPOINT

```
https://edge.vinkius.com/{token}/mcp
```

Claude · Cursor · VS Code · Windsurf · Grok · Gemini

Security Is the Architecture

Security in Vinkius is not a feature — it's the foundation of the runtime. The gateway enforces multiple independent protection layers between AI agents and third-party APIs.

01 — Ed25519 PKI Vault

Every workspace has an Ed25519 Master Key. Session keys are generated ephemerally (24h TTL) and signed by the Master Key. Credentials never leave the vault boundary.

02 — V8 Isolate Sandboxing

Tool code runs inside isolated-vm V8 isolates with 64 MB memory caps and per-request timeouts. No filesystem access, no network access except through the SSRF-guarded fetch bridge.

03 — SSRF Guard

All outbound HTTP requests are DNS-resolved and validated before execution. Private IP ranges (10.x, 172.16-31.x, 192.168.x, AWS metadata 169.254.x) are blocked at the network layer.

04 — DLP & PII Redaction

A ResponseGuard pipeline intercepts every tool response. Configurable redaction patterns strip sensitive fields (emails, SSNs, card numbers) before data reaches the AI agent.

05 — Cryptographic Audit Trail

Every request is signed into a SHA-256 hash chain with Ed25519 signatures. Events form a tamper-proof, SIEM-exportable forensic record.

06 — Honeytoken Trap System

Phantom credentials are injected into isolated environments. If a honeytoken is used outside Vinkius infrastructure, the server is quarantined instantly.

Emergency Kill Switch

EU AI Act Art. 14(1) Compliant

The kill switch is an **emergency halt** mechanism — not a simple toggle. When triggered, it executes three actions atomically:

01 — Server deactivated

The MCP server is immediately taken offline across the entire cluster.

02 — All tokens revoked

Every connection token is invalidated. Total lockout — reconnection blocked until new tokens are issued.

03 — WebSocket connections killed

Active connections terminated via Redis pubsub broadcast. Propagates to every runtime node in the cluster.

Full Visibility. Zero Guesswork.

The Vinkius cloud dashboard includes a full MCP Governance suite — real-time analytics and security controls for production AI operations.

Control Plane

KPI dashboard with request volume, latency, success rate, token consumption, and AI-generated operational briefings.

Agent Activity

Which AI clients are connecting, how often, and what they're doing — real-time session tracking.

FinOps

Cost tracking per tool, payload compression savings, budget optimization signals, and consumption trends.

Tool Health

Slowest and most error-prone tools, with actionable root-cause insights and performance baselines.

Firewall & DLP

PII redaction activity, sensitive data protection counters, and security event timeline.

Incident Log

Error trends, failure rates, status-code breakdowns, and forensic audit trail access.

> Get started at **cloud.vinkius.com** — connect your AI agent in under 60 seconds.

Biodiversity Impact Assessment MCP

4 tools available
Cloud-hosted on Vinkius

You can now run detailed ecological impact models directly through your AI client. This MCP provides the specific logic needed to evaluate how industrial footprints, like oil and gas infrastructure, affect local ecosystems. Instead of manually calculating area losses or checking compliance against regulatory sequences, you let your agent handle the math and the logic.

You can determine exactly how much habitat is lost across different types within a project area or assess if a new pipeline will split a continuous habitat into disconnected fragments. It also acts as a compliance check. If you have a mitigation plan, the MCP can verify that you are following the mandatory sequence of avoidance, minimization, restoration, and offsetting. This moves your environmental assessment from rough estimates to data-driven reports that follow standard ecological protocols.

Core Capabilities

01 — Habitat Loss Calculation

Your agent calculates total area lost across various ecosystem types.

02 — Fragmentation Modeling

The MCP evaluates how infrastructure splits habitats into disconnected pieces.

03 — Species Impact Analysis

Your AI client measures biological consequences based on sensitive species presence.

04 — Compliance Auditing

The tool verifies that mitigation plans follow the mandatory priority sequence.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/en/ai-agent-connect/biodiversity-impact-assessment** — connect your AI agent in three steps.

01 Connect your MCP-compatible client to Vinkius.

02 Provide your project data or habitat parameters to your AI client.

03 Ask your agent to run specific tools like habitat loss or fragmentation checks.

04 Receive structured ecological data and compliance results.

Connect your client to Vinkius to start running ecological models.

Built For

Environmental professionals and industrial planners use this MCP to automate ecological risk assessments.

Environmental Consultants

They hand off complex habitat loss calculations and compliance checks to the agent.

Ecologists

They use the tool to model species impact and habitat fragmentation.

Industrial Project Managers

They use the MCP to verify that their project footprints meet mitigation requirements.

What Changes When You Connect

01 Automates the calculation of habitat loss across multiple ecosystem types.

02 Identifies fragmentation risks caused by linear infrastructure.

03	Validates mitigation plans against the mandatory avoidance and minimization hierarchy.
04	Provides data-driven biological consequence measurements.

Real-World Applications

Pipeline Routing

Assess how a new pipeline route might fragment a continuous habitat.

Regulatory Compliance

Verify that a proposed mitigation strategy follows the required priority sequence.

Project Footprint Analysis

Calculate the total hectares of specific habitats lost during industrial construction.

Sensitive Species Protection

Evaluate the biological impact of operations on areas containing sensitive species.

Patterns to Avoid

Manual compliance guessing

AVOID

You write a mitigation plan based on general guidelines and hope it meets regulatory standards during a review.

✓ INSTEAD

Run your plan through audit_mitigation_hierarchy to ensure you are actually following the mandatory sequence of avoidance and minimization.

Vague habitat estimates

AVOID

You tell a client that the project will have a minor impact on local greenery without specific numbers.

✓ INSTEAD

Use get_habitat_loss_summary to provide exact totals for every ecosystem type within your project footprint.

Ignoring connectivity risks

AVOID

You plan a pipeline route based solely on the shortest distance without considering how it cuts through a forest.

✓ INSTEAD

Use assess_fragmentation_risk to see if your infrastructure will split continuous habitats into disconnected pieces.

The Right Fit

Environmental consultants and industrial planners should connect this MCP if they need to turn raw project footprints into standardized ecological reports. If you are just doing casual site visits without formal mitigation requirements, you don't need this. The deciding factor is whether your project requires a documented hierarchy of avoidance and minimization.

Biodiversity Impact Assessment 4 Tools

These tools handle the heavy lifting for ecological modeling, from calculating habitat loss to auditing mitigation compliance.

#	TOOL	DESCRIPTION
01	audit_mitigation_hierarchy	This tool checks if your proposed mitigation plan follows the mandatory priority sequence of avoidance, minimization, restoration, and offsetting.
02	evaluate_species_impact	This tool measures the biological consequences of project activities by looking at the presence of sensitive species.
03	get_habitat_loss_summary	This tool calculates the total amount of habitat lost across all specific types within a project footprint.
04	assess_fragmentation_risk	This tool evaluates the risk that industrial infrastructure will split large habitats into smaller, disconnected pieces.

See It in Action

Real prompts you can use once this MCP is connected to your AI agent through Vinkius Cloud.

U Calculate the habitat loss for a 500 hectare project where 50 hectares of rainforest and 20 hectares of grassland are impacted.

The total area lost is 70 hectares, consisting of 50 hectares of rainforest and 20 hectares of grassland.

U What is the fragmentation risk for a 100km pipeline passing through a habitat that is 5km wide?

The fragmentation index is high due to the significant length of the pipeline relative to the habitat width, creating a substantial edge effect area.

U Is a mitigation plan that only uses offsetting compliant with the hierarchy?

No, the plan is non-compliant because it fails to address avoidance and minimization before moving to offsetting.

Frequently Asked Questions

01 **What can this MCP do for environmental assessments?**

It calculates habitat loss, assesses fragmentation risks, evaluates species impact, and audits mitigation plans for regulatory compliance.

02 **How does the mitigation hierarchy audit work?**

The tool checks if a plan follows the mandatory sequence of avoidance, minimization, restoration, and offsetting.

03 **Can I use this with Claude or Cursor?**

Yes, you can connect this MCP to any MCP-compatible client like Claude, Cursor, or Windsurf.

04 **Does it calculate specific habitat types?**

Yes, the get_habitat_loss_summary tool calculates the total amount of habitat lost across all types within a project footprint.

05 **What is fragmentation risk?**

It is the risk that industrial infrastructure, such as a pipeline, will split large habitats into smaller, disconnected pieces.

06 **How do I calculate the total area of habitat lost?**

You can use the `get_habitat_loss_summary` tool by providing the total project footprint area and a map of the impacted habitat types.

07 **Can this tool check if my mitigation plan is valid?**

Yes, the `audit_mitigation_hierarchy` tool checks if your proposed actions follow the required priority sequence of avoidance, minimization, restoration, and offsetting.

08 **How is species risk calculated?**

The `evaluate_species_impact` tool calculates risk by weighting the presence of species against their IUCN Red List categories and the magnitude of habitat loss.

Go Live in 60 Seconds

Get your connection token from **cloud.vinkius.com**, then paste the endpoint URL into any MCP-compatible client.

YOUR MCP ENDPOINT

```
https://edge.vinkius.com/[TOKEN]/mcp
```

CLIENT	WHERE TO CONFIGURE
Claude AI	Profile → Customize → Connectors → "+" → Add custom connector → Paste endpoint
Cursor	Settings → Features → MCP Servers → "+ Add New MCP Server" → Type: SSE → Paste endpoint
VS Code	Ctrl/Cmd+Shift+P → "MCP: Add Server" → add `"biodiversity-impact-assessment": { "url": "…" }`
Windsurf	MCP Settings → `mcp_settings.json` → Add endpoint URL
ChatGPT	Settings → Tools & plugins → Add MCP server → Paste endpoint
Gemini	Extensions → Add MCP Server → Paste endpoint URL

ASK AN AI ABOUT THIS

Let your preferred AI explain this MCP server

- Ask ChatGPT
- Ask Claude
- Ask Perplexity
- Ask Gemini
- Ask Grok

READY TO CONNECT

Biodiversity Impact Assessment is live on Vinkius Cloud.

Get your connection token, paste it into your AI agent, and start building. No SDK. No deployment. Just results.

Start at cloud.vinkius.com →

vinkius.com · support@vinkius.com

INDEPENDENT PLATFORM DISCLAIMER

DOCUMENT INFORMATION

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MCP Server	Biodiversity Impact Assessment MCP
Server ID	`01a0937e-23b7-7195-9ad5-bafec3b5b21b`
Platform	Vinkius Cloud for AI Agents
Endpoint	`https://edge.vinkius.com/{token}/mcp`

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