

Scottish International Conference on Multidisciplinary Research and Innovation – SICMRI 2026

A MANAGEMENT-OBJECTIVE CROSSWALK FOR PROTECTED AREAS IN UZBEKISTAN: LINKING NATIONAL LEGAL TYPES WITH IUCN CATEGORIES AND GEOSPATIAL RECORDS

Kamolov Jakhongir Ilkhomovich

Doctoral researcher, Department of land resources
use and state cadastres, Bukhara state technical university

kamolov.j.i@gmail.com

<https://doi.org/10.5281/zenodo.22304307>

Abstract. National protected-area designations and IUCN management categories answer different questions. A legal designation identifies the status created by domestic law, while an IUCN category describes the principal management objective that should guide decisions on the site. Treating the two systems as interchangeable produces weak records, uncertain international reporting and management plans that do not reflect the actual conservation purpose. This article develops a practical crosswalk for Uzbekistan in which correspondence is determined site by site rather than by designation name alone. The method combines legal review, management-objective screening and a geospatial data model. It separates designation, IUCN category, governance type and management-effectiveness evidence into distinct fields linked to one spatial object. The analysis shows that some national types have a likely IUCN counterpart, but no automatic one-to-one conversion is defensible without examining the founding act, zoning scheme, permitted uses and long-term conservation intent. A staged workflow is proposed for the state cadastre: boundary validation, legal-profile compilation, objective scoring, expert review, category assignment and periodic verification. The resulting structure can support national administration while also producing records suitable for international comparison.

Keywords: protected areas; IUCN management categories; national designation; state cadastre; geospatial database; governance; management objectives; Uzbekistan.

Protected areas are governed through names, boundaries and rules, yet these elements do not always describe the same thing. A site may be called a reserve, a national park or a natural monument under domestic law, but its international management category depends on the purpose for which nature is conserved and on the activities permitted in practice. This distinction matters because international datasets compare sites across legal systems that use different terminology. If a designation title is converted mechanically into an IUCN category, the resulting record may look complete while misrepresenting the management regime.

Uzbekistan's Law No. 710-II of 3 December 2004 establishes the legal basis for protected natural areas. The law connects protection with the conservation of natural diversity, ecological balance, environmental monitoring and restoration, and it also requires a state cadastre containing legal status, geographic position, quantitative and qualitative characteristics, values and land-user information [1]. These provisions provide a sound basis for digital administration. They do not, however, eliminate the need to distinguish the national legal type from the international management objective.

The IUCN system is often described as a hierarchy of protection, but this reading is inaccurate. Categories Ia–VI identify different primary management objectives; they do not rank sites from ‘best’ to ‘worst’. The correct category follows from the site's long-term conservation purpose, not from its title, agency or perceived prestige [2]. A useful national-to-global crosswalk must therefore preserve domestic terminology while adding an independently reasoned management-category field.

The study uses a normative-comparative method. The national component is derived from the official text and structure of the Law of the Republic of Uzbekistan ‘On Protected Natural

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Areas' and from the cadastre duties stated in that law [1]. The international component follows the IUCN guidance on recognising protected areas and assigning management categories and governance types [2]. Current reporting practice is considered through the Protected Planet platform and the Protected Planet Report 2024 [3, 4]. These sources were selected because they define the legal, conceptual and reporting layers relevant to the proposed model.

Comparison was conducted in two stages. First, the defining purpose, expected degree of naturalness, permitted intervention and typical visitor or resource-use regime were identified for each IUCN category. Second, national designations were examined for their legal purpose and probable management pattern.

The proposed digital model applies a one-site-one-core-record rule. Each spatial object is represented by a validated boundary and a stable identifier. Legal designation, IUCN category, governance type and management-effectiveness information are stored in separate attributes. This arrangement permits a national authority to revise an international classification without altering the legal status of the site, and conversely to record a legal amendment without silently changing the management category.

1. Why designation names cannot serve as automatic category codes. The comparison revealed a structural difference between the systems. Uzbek law creates named legal forms and special regimes, whereas IUCN categories describe the principal objective of management. Similar words may conceal different rules. For example, a national park can resemble Category II where ecosystem protection is primary and recreation remains compatible with that purpose. If substantial areas are managed as cultural landscapes with continuing human–nature interaction, Category V may be more accurate. If regulated natural-resource use is a central and enduring part of the conservation model, Category VI may be considered. The name 'national park' alone does not settle the issue.

Table 1.

Indicative crosswalk between national designations and IUCN management categories

National designation or object	Probable IUCN relationship	Evidence required before assignment
State nature reserve	Often Ia; in some cases Ib	Founding purpose, access rules, degree of intervention, wilderness character
National nature park	Often II; potentially V or VI	Primary objective, zoning, resident/resource use, tourism regulation
State nature monument	Often III	Protected feature, boundary sufficiency, long-term conservation regime
State sanctuary / zakaznik	Frequently IV; sometimes other categories	Species or habitat target, duration, active interventions, permitted uses
Biosphere reserve	No single automatic category	Separate assessment of core and other legally protected zones; UNESCO status is not an IUCN category
Botanical or zoological garden	Not normally an IUCN protected-area category	Whether in-situ conservation of a defined natural area is the primary objective
Buffer zone / ecological corridor	Context dependent	Independent legal protection, conservation objective, governance and spatial relationship
Water-	Context	Primary conservation purpose,

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protection, resort or recreation zone	dependent; often outside the system	permanence, restrictions and biodiversity outcomes
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Table 1 is deliberately framed as an indicative crosswalk. It is a screening device, not a legal conversion table. The final assignment must be supported by site documents and management reality. The same national designation may produce more than one IUCN category across a network because zoning, settlement patterns, intervention intensity and permitted resource use vary from site to site.

2. Minimum evidence for category assignment. A defensible classification file should contain at least six forms of evidence: the founding legal act; an authoritative boundary; a statement of primary conservation objective; the management plan and zoning scheme; a list of permitted and prohibited uses; and a record of governance responsibility. Where the written objective and actual practice diverge, the discrepancy should be recorded and resolved rather than hidden by selecting the category that appears most favourable.

The principal-objective test is the central decision rule. The assessor first asks whether long-term nature conservation is the primary purpose of the area. If the answer is negative, an IUCN protected-area category should not be assigned merely because the territory has environmental restrictions. If the answer is positive, the next questions concern naturalness, the role of active habitat management, the importance of a specific natural feature, the relationship between people and landscape, and the scale of sustainable resource use.

3. Geospatial cadastre architecture. The law's cadastre provision already calls for geographic position and quantitative and qualitative characteristics [1]. A contemporary implementation can transform that requirement into a relational geodatabase. The spatial layer should store the official polygon, source scale, coordinate reference system, boundary-approval date and topology status. A linked legal table should record designation, founding act, amendments, competent authority and restriction regime. A management table should store primary objectives, zoning, management-plan dates, IUCN category, date of assignment, assessor and review status.

Table 2.

Recommended data blocks for a protected-area geospatial cadastre

Data block	Core fields	Quality control
Identity and geometry	Stable site ID; official name; polygon; area; coordinates	No overlaps or gaps without explanation; geometry linked to legal source
Legal profile	National designation; founding act; amendments; land tenure; restrictions	Current text verified; superseded acts retained in history
Management objective	Primary and secondary objectives; zoning; permitted uses	Objective supported by plan and practice, not inferred from name
International mapping	IUCN category; governance type; assignment date; rationale	Independent expert review and documented decision trail
Condition and effectiveness	Threats; indicators; assessment method; latest result	Method and date stated; evidence separated from self-assessment
Reporting history	Submission date; external identifier; version	Changes logged; national and international records reconciled

A versioned structure is essential. Protected Planet reported a complete update of Uzbekistan's national protected-area data in December 2025, including new sites and revised or

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verified records [5]. Such changes show why a database should preserve the source and date of every edit. A map without provenance cannot distinguish a genuine boundary amendment from a cartographic correction, and a category field without an assessment date cannot show whether it reflects the current management plan.

4. Operational workflow. Implementation can proceed through six linked stages. First, a national inventory is reconciled against founding acts and authoritative spatial materials. Second, polygon geometry is validated and assigned a stable identifier. Third, legal and management evidence is assembled for each site. Fourth, a multidisciplinary panel applies the IUCN principal-objective test and records its reasoning. Fifth, approved classifications are published as a national data service and prepared for international reporting. Sixth, records are reviewed after a legal amendment, a new management plan, a boundary change or a defined periodic interval.

The proposed model addresses three common sources of ambiguity. The first is terminological equivalence: similar names are assumed to mean identical management. The second is institutional equivalence: the agency responsible for a site is treated as proof of its category. The third is spatial equivalence: a single label is applied to a multi-zone territory even when different zones have different legal and management purposes. Keeping designation, category, governance and effectiveness in separate fields prevents these errors from becoming embedded in the cadastre.

Current global reporting places growing emphasis on more than area coverage. Target 3 of the Kunming-Montreal Global Biodiversity Framework combines coverage with effectiveness, connectivity, ecological representation and equitable governance [4, 6]. Consequently, assigning an IUCN category is not a substitute for measuring conservation results. Category describes intended management orientation; effectiveness assessment examines whether governance and management are achieving the intended outcomes. Both are needed, but they must not be stored as if they were the same indicator.

For Uzbekistan, the most practical starting point is a pilot assessment covering several contrasting legal types rather than an immediate nationwide recoding exercise. A state reserve, a national nature park, a sanctuary, a natural monument and a biosphere reserve would expose the main classification problems. The pilot should involve legal specialists, protected-area managers, ecologists, cadastral experts and GIS practitioners. Publishing the assessment rationale would make later revisions transparent and would also provide a national interpretation guide grounded in local law.

Conclusion. Uzbekistan does not need to replace its national classification in order to improve international comparability. The stronger solution is to preserve the legal designation and add a separately reasoned IUCN management category. The connection between the two should be expressed through documented evidence rather than a fixed translation of names.

A reliable crosswalk requires four safeguards: application of the principal-management-objective test; site-level review of legal and operational documents; separation of designation, category, governance and effectiveness; and retention of a versioned decision trail. These safeguards allow the cadastre to serve domestic administration and international reporting without sacrificing the meaning of either system.

It is recommended that the competent authorities prepare a national assignment protocol, test it on a representative pilot group, approve a common geodatabase schema and introduce scheduled verification of boundaries and category rationales. The resulting system would make inconsistencies visible, improve data exchange and connect protected-area classification with monitoring and management decisions.

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